# A2: Off Case

## A2 Politics

### Executive Shielding

#### Plan doesn’t require Congressional authorization

Propst 2011

[Stephen, Hogan Lovells US LLP, “Presidential Authority To Modify Economic Sanctions

Against Cuba”, http://www.hoganlovells.com/files/Publication/57d34e80-51b8-4ee0-ae64-750f65ee7642/Preview/PublicationAttachment/55896b90-840a-42bf-8744-752a7a206333/Cuba%20Aritcle%20FINAL.pdf]

The provisions of the CACR in effect in March 1996 and codified by Helms-Burton prohibit imports of Cuban origin goods into the United States, except as “specifically authorized by the Secretary of the Treasury by means of regulations, rulings, instructions, licenses or otherwise.”97 Accordingly, the President could exercise executive authority to allow limited types of Cuban-origin goods into the United States under general or specific licenses, particularly when such authorizations could be justified as providing support for the Cuban people or democratic change in Cuba. For example, just as the January 2011 revisions to the CACR implemented by the Obama Administration authorized non-family remittances to individuals in Cuba to support private economic activity, the President could authorize the importation of certain types of goods produced by individuals and small private businesses in Cuba. Similarly, the President could authorize imports of certain services from individuals and small private businesses in Cuba pursuant to general or specific licenses. For example, the CACR could be amended to allow U.S. person to purchase services from individual professionals and web-based entrepreneurs in Cuba, such graphic designers, free lance writers, composers, architects and consultants.

### A2 Farm Lobbies

#### Farm lobbies are weak and already backlashing – farm bill proves

McElwee 7/11

[Sean, PolicyMic, “Farm Bill 2013: Is This Big Agriculture's Last Gasp?”, http://www.policymic.com/articles/54173/farm-bill-2013-is-this-big-agriculture-s-last-gasp]

Now that I’m done trolling the PolicyMic conservatives, let’s address the real meat of the story here — the farm lobby. The failure of the farm bill indicates that the great hydra agriculture lobby may have only a few ugly heads left to rear. What’s the problem with the farm lobby? Don’t farmers need representation too? Don’t farm subsidies help keep the food market stable? Yes and yes. But, American farm policy may be one of the most incoherently developed and rigidly path-dependent systems in the world. P.J. O’Rourke once noted, “Farm policy can be explained. What it can't be is believed." Many of us don’t remember when farming was a killer lobby, able to fight off any representative who questioned the billions funnelled to them. In a supposedly “free-market” country, our ag policy is run like Russia during central planning. Huge tariffs protect the American sugar manufactures from Brazilian competition, to the tune of $3.5 billion a year. That also drives up the demand for high-fructose corn syrup, giving us something to do with the corn we massively overproduce. The big story for the farm bill is that the U.S. government is trimming direct payments and replacing them with an expanded crop insurance program. Crop insurance protects farmers from dramatic drops in the price of crops, but the premiums rarely add up to the payouts. Last year, the crop insurance program paid out $17 billion, three-quarters of which was paid for by Uncle Sam. As any economist knows, such programs (private gain with public risk) encourage moral hazard, and the result is that farmers have taken more risk “by farming on flood plains or steep hills.” The crop insurance program overwhelmingly helps wealthier farmers, but that fact that the lobby couldn’t keep direct payments indicates a level of atrophy. There are other indications of the weakening farm lobby. For instance, last year, the U.S. was hit by its worst drought in 50 years, which was likely exacerbated by climate change. Farmers' groups sought a bill that would provide relief, but while the bill made it out of committee, it was never brought to a vote on the House floor. Of course, the grand narrative of the bill (i.e. that the Republicans in the House are insane) is also accurate. They’re clearly crazy-level congresso-terrorists, something data showed us long ago and that other conservatives have been hammering them for. The chaos surrounding the farm bill is certainly a reminder that this is the most polarized Congress in a long time, and a harbinger of more inaction (immigration, student loans, tax reform). But it’s also a reminder that while we consume more food, few, if any of us remain attached to nature and very few of us farm. It’s an indication that what used to be a broadly bipartisan issue has now become an area for savage political fighting. That will have increasing political implications in the years to come.

## A2: TPA PTX

### No Pass – all trade agreements

#### No pass – lacks PC, no European support for TATIP, and Japan inclusion blocks TPP

Greenwich Time 6/15 http://www.greenwichtime.com/news/politics/article/Obama-trade-dilemma-Scant-support-from-Democrats-4602179.php

WASHINGTON (AP) — As President Barack Obama pushes an ambitious agenda to liberalize global trading, political trade wars already are forming, and they're with fellow Democrats rather than with Republicans, his usual antagonists.¶ Obama is promoting free-trade proposals with Europe and Asia that could affect up to two-thirds of all global trade.¶ The ambitious deals would reduce or eliminate tariffs and other trade barriers. But there's trouble ahead for both the Trans-Pacific Partnership and the Trans-Atlantic Trade and Investment Partnership — at the negotiating table and from Congress.¶ The deal with Europe will be a top item this coming week in Northern Ireland at the Group of Eight summit of major industrial democracies. But French and other objections have recently surfaced which could delay the planned launch of the negotiations.¶ The Asia pact was brought up pointedly by the new Chinese president, Xi Jinping, in his California meetings with Obama last weekend.¶ Republicans historically have supported free-trade agreements far more than have Democrats, and a politically weakened Obama may not have enough second-term clout to successfully twist the arms of enough Democratic lawmakers.¶ Some Republicans who usually vote for easing trade barriers may vote "no" just because the agreements will bear Obama's signature.¶ Both deals generally have the support of U.S. businesses. But labor unions and human rights and environmental groups — core Democratic constituencies — have so far viewed them cynically.¶ These organizations, and Democrats in general, say that free-trade deals can cost American jobs and lead to environmental and workplace abuses that would not be tolerated in the U.S.¶ "We certainly have concerns," said Celeste Drake, a trade and policy specialist at the AFL-CIO, the nation's largest labor federation. "I think Obama realizes this problem about Republicans always being the big supporters (on trade liberalization) and he would like to have our support. But overall we're skeptical. We wish we'd see more."¶ It's not a new problem.¶ President Bill Clinton powered the U.S.-Mexico-Canada North American Free Trade Agreement through Congress in 1993 only by heavily courting Republicans and overcoming stiff Democratic opposition, including from House Democratic leaders and unions.¶ As he campaigned for president in 2008, Obama courted blue-collar votes by criticizing NAFTA. Since then, he's changed his tune.¶ Obama worked to overcome Democratic resistance to win passage in 2011 of trade pacts with South Korea, Panama and Colombia, completing negotiations begun by his Republican predecessor, President George W. Bush.¶ The talks for a new Asia-Pacific free-trade zone came up in the Obama-Xi meetings last weekend.¶ At first, the deliberations involved the United States and 10 Pacific Rim nations: Australia, Brunei, Canada, Chile, Malaysia, Mexico, New Zealand, Peru, Singapore and Vietnam. More recently, Japan has sought to join the talks, drawing the keen interest of the Chinese leader. Until now, China hasn't been included in the process.¶ "We have a half-a-trillion-dollar-a-year trade relationship with China," said Tom Donilon, Obama's national security adviser. "President Xi's point ... was that the Chinese would like to be kept informed and have some transparency into the process."¶ But the possible inclusion of Japan, the third-largest economy, after the U.S. and China, generated heat from auto-state lawmakers, who criticized Japan's efforts to restrict auto imports.¶ Sen. Debbie Stabenow, D-Mich., pledged to fight ratification if Japan won't "stop blocking American companies from its markets."¶ Michael Froman, a White House international economics adviser nominated to be the next U.S. trade representative, said the auto industry concerns are "well-founded" and he suggested they would be addressed.¶ Backers of a sweeping U.S. trade deal with the 27 European Union countries hoped to get an enthusiastic sendoff from the G-8 summit in Northern Ireland on Monday and Tuesday.¶ British Prime Minister David Cameron, the host, has made trade liberalization a priority, and many European nations are hoping the promise of expanded trade will help reverse Europe's spreading recessions.¶ "An EU-US trade deal could add tens of billions to our economies," Cameron told reporters. "Everything is on the table, with no exception."¶ But there already are serious divisions in Europe.¶ Despite Cameron's and Obama's assertions that everything should be on the table, the European Union Parliament bowed to strong French concerns and recently voted to exclude TV, movies and other cultural "audiovisual services" from the trade talks even before formal negotiations begin next month.¶ France stuck to this "cultural exception" at a meeting of the EU members in Luxembourg on Friday.¶ Also, some members of the European Parliament are urging that data protection provisions be made a key part of the negotiations — in response to recent disclosures of widespread snooping by the U.S. intelligence community on telephone and Internet communications at home and abroad.¶ Other potential roadblocks include longstanding arguments over genetically engineered food and other agricultural issues, as well as "Buy American" provisions in recent U.S. legislation, climate change and a squabble over government subsidies involving plane makers Boeing in the U.S. and Airbus in Europe.¶ "Both sides know that they need to work very hard," said Philipp Rosler, vice chancellor of Germany and minister of economics and technology.¶ "And only if the people understand that, and only if we don't end up just having discussions on tiny details — like chickens — only then will we have the opportunity of not only negotiating, but also of concluding a good agreement," Rosler told a conference at the Brookings Institution, a U.S. think tank.¶ Obama, with the backing of Michigan Rep. Dave Camp, the Republican chairman of the House Ways and Means Committee, is also pushing for renewal of an expired law that allowed the White House to submit trade deals to Congress for a straight yes-or-no vote without amendments.¶ "This is a Congress that's pro-trade. But it's also highly polarized," said James Thurber, a political science professor at American University. "Business has been pushing these trade deals for a long time. Labor has not. So that splits things in a difficult manner for Obama."¶ "He's got people who don't want him to win on anything. And then he's got some people from labor who are skeptical about expansionistic trade policies and their effect on the workforce here," Thurber said. "So it will be tough."

## A2 Renewables DA

#### No renewable trade-off – change in consumption patterns will be small and energy mandates check

Levi 2013

[Michael, Senior Fellow for Energy and the Environment at the Council on Foreign Relations, “America's Energy Opportunity”, Foreign Affairs. May/Jun2013, Vol. 92 Issue 3, p92-104. 13p]

**Some critics argue that further increases in U.S. oil and gas production could be catastrophic for** both **the development of clean energy** and efforts to curb American oil consumption. **These concerns are** understandable but ultimately **overwrought**. There is a simple way to square rising U.S. oil output with lower oil use: fewer imports. To be sure, greater U.S. petroleum production will reduce world oil prices, which will encourage slightly more U.S. oil consumption. But **American petroleum use tends to go up only modestly when prices fall, so the net result will still be that the United States spends less money on oil**. Moreover**, since U.S. regulation is a central driver of the shift to more fuel-efficient cars and trucks, lower oil prices will have a smaller impact on petroleum consumption than one might assume** -- so long as regulations are kept in place and extended over time. Lower oil prices will prompt other countries to boost their oil consumption -- a development that, no matter how small, spells bad news for the climate. **But gains in U.S. oil production are likely to encourage other states, such as Saudi Arabia** and the United Arab Emirates, **to curb their own output in an effort to avoid lowering prices significantly. As a result, increased U.S. petroleum production will likely have only a marginal effect on total world oil supplies and consumption, muting the impact of the U.S. oil boom on global emissions**. Even a boost in U.S. oil production that eliminated all imports -- a highly improbable outcome -- would probably add just one or two percentage points, at most, to global emissions.

## A2: Brazil DA

#### No link and/or permutation – the US and Brazil are working together to increase world ethanol markets

Reuters 9/14/2012 “Insight: U.S. and Brazil - At last, friends on ethanol”, http://www.reuters.com/article/2012/09/14/us-brazil-us-ethanol-idUSBRE88D19520120914

(Reuters) - After years at each other's throats, Brazil and the United States are working together to promote the use of ethanol in a collaboration that could revolutionize global markets and the makeup of the biofuel itself.¶ The breakthrough came in January when Washington allowed a three-decade-old subsidy for U.S. ethanol producers to expire and ended a steep tariff on foreign biofuels. The tariff, in particular, had poisoned diplomatic relations between the world's top two ethanol-producing countries for years.¶ Since then, industry executives and government officials from both countries have seen tangible progress in efforts to boost the production and consumption of ethanol around the world, they told Reuters.¶ The two nations have been lobbying foreign governments to create new markets in Africa and Latin America, planning joint "road shows" to attract new investments in biofuel companies, and pushing for a uniform global standard for ethanol, which could make it easier to trade the biofuel across borders.¶ Results may still be years away, but officials say the collaboration might breathe some new life into an industry facing an uncertain future because of chronic production shortfalls and doubts about the environmental benefits of many biofuels.¶ "I think there's a clear sense now that we should be collaborating instead of fighting each other," said Terry Branstad, governor of Iowa, the top U.S. ethanol-producing state.¶ After a July meeting with senior officials in Brazil, "I was very encouraged by what I heard," he said in an interview. "The more we cooperate, the more we can grow the worldwide demand for what we produce."¶ Plinio Nastari, the head of respected Brazilian sugar analysis firm Datagro, said he was particularly encouraged by the joint efforts to develop additional ethanol producers.¶ Because Brazil and the United States account for about 85 percent of global ethanol production, one-time events like the current U.S. drought can cause wild swings in supply - and prices.¶ "That holds up ethanol from becoming a widely traded commodity," Nastari said.¶ Many of the ideas for collaboration date back to a 2007 bilateral agreement signed by previous Brazilian and U.S. governments. Yet progress was slow until this year as diplomats and other officials often spent time hashing out disputes instead of finding ways to work together.¶ "Unfortunately, the tariff issue made it impossible to move forward on many of these (subjects)," said Geraldine Kutas, head of international affairs for Unica, Brazil's main sugar cane industry association. "The conditions are right, now. This is the moment of truth."¶ THROUGHOUT THE TROPICS¶ The most promising effort is also the one that has shown the most visible progress: trying to get countries in Central America, the Caribbean and Africa to produce and consume more ethanol.¶ Officials from the U.S. Department of State, Department of Energy and the private sector, and their Brazilian equivalents, have been working together to convince other governments of ethanol's benefits.¶ "We're trying to show other nations what ethanol has meant for our economies," Iowa Governor Branstad said. "In our state, it's helped boost our farmers' income and reduce our dependency on foreign oil. Those are ideas with a lot of appeal."¶ Sugar cane, the main source of ethanol made in Brazil, already grows in many of the countries seen as potential producers of the biofuel.¶ Cane produces more energy than it consumes during the ethanol-making process, unlike corn, the basis for U.S. ethanol.¶ Homegrown ethanol holds obvious appeal for small, poor countries that import most of their energy at enormous costs. Honduras, for example, spent $2.1 billion - 12 percent of its gross domestic product - on fuel imports in 2011.¶ However, producers and other investors generally refuse to build ethanol mills and other infrastructure unless they have a guaranteed domestic market.¶ "And implementation of that framework gets to be very technical and difficult," Unica's Kutas said.¶ One example: In the 1980s, Guatemala passed a law mandating a blend of ethanol in gasoline but has rarely enforced it because of bottlenecks that include a separate law capping the amount of the sugar cane crop that can be used for biofuels.¶ To resolve such problems, the Brazilian and U.S. governments have helped finance and produce studies of the countries' ability to create and sustain ethanol production. Honduras, Guatemala and El Salvador are where the most progress has been made, diplomats say.¶ "We have deep contacts in many of these countries, but the Brazilians have the expertise on sugar," said a U.S. official who requested anonymity because the negotiations are politically sensitive. "When we work together, as we have been lately ... it's pretty powerful."¶ THE NEXT FRONTIER: CUBA?¶ Brazil and the United States have stepped up their lobbying in recent months. Pilot ethanol programs to introduce the biofuel to consumers with blend requirements are set to begin in three countries, starting in Honduras by early 2013, another U.S. official said.¶ To accelerate the process, Brazil and the United States are planning presentations in coming months to attract new investors interested in biofuel projects in the three countries, officials said.¶ Brazil's growing diplomatic clout has been critical to opening doors in countries where the nation has deep strategic or cultural connections, such as Senegal, Mozambique and Haiti. And it is uniquely equipped to exert influence in Cuba.¶ Cuba's once-mighty sugar industry has deteriorated in recent decades under communist rule, but Rice University economist Ron Soligo has said the country has the potential to become the world's No. 3 ethanol producer behind the United States and Brazil.¶ While Washington has had little diplomatic contact with Cuba in the past five decades, Brazil has a tradition of warm political and economic ties with the Caribbean nation. President Dilma Rousseff visited Havana in January and spoke of how Brazil can help Cuba develop its economy.¶ Large-scale ethanol production has been largely taboo in Cuba, in part because former President Fidel Castro has denounced it as a "sinister" idea that drives up global food prices. Yet some Brazilian officials say that stance could change dramatically once the 86-year-old leader withdraws from politics.¶ "Everybody knows that Cuba is an ethanol bonanza waiting to happen," said a Brazilian official who requested anonymity. "We'll be ready."

#### Plan provides an area of cooperation – US-Brazil want to work together to increase global ethanol markets

Reuters 9/14/2012 “Insight: U.S. and Brazil - At last, friends on ethanol”, http://www.reuters.com/article/2012/09/14/us-brazil-us-ethanol-idUSBRE88D19520120914

Separately, Brazil and the United States are addressing obstacles that have prevented ethanol from becoming a globally traded commodity like oil.¶ The only ethanol futures trading on the Chicago Board of Trade are for the U.S.-produced corn variety. As a result, U.S. companies that buy Brazilian ethanol must often do so through brokers or purchase complex forms of insurance to limit their risks - all of which make deals more expensive.¶ The sticking point: Brazil requires higher purity levels for ethanol than the United States does. This lack of a global standard has created a host of other problems, such as delays in the development of universal flex-fuel cars that can use either ethanol or gasoline.¶ But officials from both countries said technicians had made substantial progress toward a common standard in recent months.¶ "We're very close now," a U.S. official said, adding that the focus of negotiations has now moved to Europe, where the talks have been more contentious.¶ At the same time, a flurry of U.S.-Brazil collaboration has taken root in the private sector as companies try to create more-efficient biofuels from a variety of sources and with more uses.¶ Brazil's cane-based ethanol is seen as a more fertile ground for innovation, while U.S. companies have more resources for research and development.¶ U.S. planemaker Boeing Co and Brazilian counterpart Embraer announced plans last October to build a research center for developing biofuels for aviation.¶ Renewable fuel made by Emeryville, California-based Amyris Inc powered a demonstration flight by an Embraer jet at a big United Nations environmental conference in Rio de Janeiro in June.¶ Solazyme Inc is involved in the Pentagon's biofuel efforts. The South San Francisco, California, company broke ground on a 100,000-tonne sugar-to-oil facility in Brazil in June as part of a joint venture with agriculture group Bunge Ltd.¶ Brazil and U.S. officials have been brokering frequent introductory coffees and dinners to match up companies from the two countries.¶ "The Americans seem to be here almost every week," said Adhemar Altieri, a spokesman for Brazil sugar cane association Unica. "We're hearing almost as much English as Portuguese around here these days."¶ Joint efforts may also be forming to increase academic and research collaboration on biofuels.¶ Debi Durham, an economic aide to the Iowa governor, said that after returning from Brazil, she contacted the president of Iowa State University to encourage the school to admit more Brazilian students in the sciences - a priority of Rousseff's.

## A2: Algae CP

#### Algal fuel can’t solve the Aff

Berkeley Energy Review 12

[inter-disciplinary project run by the Univ. of Cal. Berkeley, Algal Biofuel, “The Berkeley Energy Review,” Aug. 23, 2012, http://ucs.berkeley.edu/energy/2012/08/biofuels/algal-biofuel/]

Use of algal biofuel gives rise to many advantages. Algal biofuel is net carbon-neutral, as all the emission from burning this fuel comes from the carbon dioxide in the feedstock, since algae require carbon dioxide to grow. In addition, algae are renewable resources, unlike petroleum. Furthermore, algae can also grow in areas unsuitable for agriculture, so its production does not take up useful land area. Also, compared to other biofuels sources, algae production has a much higher energy yield per area of land used, so land-wise, algae-based biofuel is a much more efficient [6].¶ Despite all the benefits from algal biofuel, many people raise concerns about it. Algae-based biofuel is not very efficient from a life-cycle perspective: algae production uses up more energy and water than other biofuel sources, such as corn, and it has higher greenhouse gas emissions. Furthermore, the algae require large quantities of fertilizer to grow; these fertilizers, made of petroleum, cause runoff and therefore unwanted eutrophication in water systems. Algae growth also requires CO2; the CO2 used to feed algae often comes from petroleum-based sources, which is a concern because this is not eliminating the petroleum dependency, but increasing it [5].

# Cuba Sugar Aff Ext

## Inherency

#### **Raul wants private investment in ethanol**

Felson 9’ COHA (Center of Hemispheric Affairs: nonprofit) RESEARCH ASSOCIATE DAVID ROSENBLUM FELSON, “Can Fading Caribbean Island-States Thrive in the World of Alternative Energy?” MARCH 25, 2009 [www.coha.org/can-fading-caribbean-island-states-thrive-in-the-world-of-alternative-energy/](http://www.coha.org/can-fading-caribbean-island-states-thrive-in-the-world-of-alternative-energy/), DA:7/1/2013

In spite of the obvious benefits, as well as the vast potential for distribution of sugar cane ethanol in the region, investments to revitalize the Caribbean sugar cane industry have been desultory up to now. With the exception of¶ Trinidad and Tobago, all Central American and Caribbean countries are net importers of fossil fuels. Even with a potential solution to energy dependence in their own backyard, many West Indian nations, as well as foreign investors, continue to take a passive approach to what would appear to be a great opportunity.

While Cuba has never pursued a large-scale ethanol fuel program, it was once the largest exporter of sugar in the world, producing 8 million metric tons of raw sugar in 1990. Namely as a result of poor management, it only yielded 1.2 million metric tons in 2007. In spite of the country’s vast arable land holdings as well as a need to¶ revamp its sugar industry, Havana has disregarded production of ethanol primarily for two reasons. First, Fidel¶ opposed using sugar cane as the base of fuel because of worries that it would adversely affect the nation’s food¶ stocks. In addition, its protectionist policies would inhibit the essential foreign investments from financing the¶ overhaul. However, at a 2006 international conference in Havana, sugar industry officials introduced measures to¶ modernize 11 distilleries as well as add 7 new ones in an attempt to expand the industry. But alas, the reform has¶ namely modernized sugar cane production with respect to alcohol and pharmaceuticals. Conrado Moreno of the¶ Cuban Academy of Sciences stated that, “ethanol will not go towards the production of fuel.” The feasibility of a¶ Cuban ethanol program lays in the hopes that Raul Castro may be more amenable than his older brother.

“The sugar cane industry and its associated cultural effects have been ingrained in many states here and makes it easy to revamp and expand such an industry,” Curtis Mohammed of Trinidad Bulk Traders Ltd has contended.¶ “All that is needed is that the respective governments hand the baton over to private sector entities and provide the investment climate to make this a reality.” But as the recent failure of the Jamaican government to reach an¶ agreement on the sale of its state-owned plantations to the Brazilian company Infinity Bio-Energy demonstrates,¶ the ostensibly simple task suggested by Mohammed appears to be more difficult to fulfill in practice. “Our¶ negotiating partners have not been able to secure the investor support that is required to deal with the obligations¶ of this agreement,” lamented Jamaican Prime Minister Bruce Golding. The Jamaican debacle regrettably¶ represents one of very few proactive attempts to revive what could come to be the region’s miracle crop.

#### **Cuban reluctance on biofuel is hype, recent project with Venezuela proves**

Grogg 7’

Patricia Grogg was born in Chile, but lives in Cuba. She shares the Cuban Correspondent duties with Dalia Acosta. Grogg worked as a Correspondent and contributor for the Mexican newspapers and as a Reporter, Editor and Assignment Editor for the Cuban agency Prensa Latina. IPS (Inter Press Service)Jun 1 2007 (IPS) “CUBA: Sugarcane – Source of Renewable Energy, But Not Ethanol,”http://www.ipsnews.net/2007/06/cuba-sugarcane-source-of-renewable-energy-but-not-ethanol/ DA: 7/3/2013

Although the residues produced by the alcohol industry do pollute the environment, there is technology that allows such waste to be used in the production of biogas, which would¶ replace the fuel oil used in the distillery itself.¶ Biogas is produced by the anaerobic digestion or fermentation of organic matter. It is a low-cost, renewable biofuel that can be used for cooking or generating electricity. At the same¶ time, the process generates a subproduct that can be used as fertiliser or as feed for fish or birds.¶ “Biogas has several uses, but the most important aspect is its impact on reducing the pollution produced by the country’s sugar and coffee factories,” Luis Bérriz, president of¶ Cubasolar, the Society for the Promotion of Renewable Energy Sources and Respect for the Environment, told IPS.¶ In his view, what is needed is “greater development of this source of alternative energy in the country,” which already uses hydroelectricity and solar power and is also interested in¶ harnessing wind power.¶ A year ago, sugar industry officials announced during an international conference in Havana an ambitious programme to expand the alcohol industry, including the modernisation of¶ 11 distilleries and the installation of seven new ones, which would make use of the waste products by means of different solutions.¶ The project was aimed at increasing the production of alcohol, including dehydrated alcohol to be mixed with gasoline on the domestic market and for export, Luis Gálvez, director of¶ the governmental Cuban Institute of Research on Sugarcane Derivatives, told IPS at the time.¶ But the industry has ruled out its plans to produce ethanol fuel – an issue on which the convalescent Castro has launched a heated debate, in which he focuses on the danger posed¶ to food security by using food crops to produce biofuels on a large scale.¶ In a congress on renewable energy last week, Conrado Moreno, a member of Cuba’s Academy of Sciences, said the upgrading of 11 distilleries would allow an increase in alcohol¶ output – mainly for use in producing rum and pharmaceutical products – to 150 million litres a year.¶ “That ethanol will not go towards the production of fuel,” said Moreno, who added that “There has never been large-scale production in Cuba” of ethanol for fuel.¶ The Cuban government signed an agreement with Venezuela in February for the construction of 11 plants to produce ethanol and the expansion of sugarcane cultivation towards that¶ end in that South American country.¶ As Alí Rodríguez, Venezuela’s ambassador to Cuba, later explained, the fuel will cover already existing demand in Venezuela, by providing the 15 percent ethanol in gasoline exports¶ and by replacing the leaded gasoline that is no longer produced in the country.

## Oil Tradeoff

#### Cuban biomass reduces oil dependency and improves Cuban economy

UNDP 2005[United Nations Development Programme, UNDP is a ¶ solutions-oriented, knowledge-based development organization that supports countries in ¶ reaching their own development objectives and internationally agreed-upon goals, “Co-generation of Electricity and Steam Using Sugarcane Bagasse and Trash”, http://www.thegef.org/gef/sites/thegef.org/files/gef\_prj\_docs/GEFProjectDocuments/Climate%20Change/Cuba%20Cogeneration%20of%20Elect%20and%20Stream/Project%20Document%20for%20WP.doc]

At the national level, the project aims to reduce Cuba’s dependency on fuel-oil (imported and national). Again the reduction achievable through implementation of the pilot project is modest, but the long term potential could be a total saving of more than 460,000 tons of fuel oil per annum. The Project also aims at supporting the sugar industry diversification program. Firstly, it will provide an additional revenue stream from the cultivation of sugar cane through the sale of electricity generated using bagasse and trash and secondly it will improve the industry’s economic performance by providing it with a reliable and inexpensive source of steam and electricity, reducing investment requirements and decreasing power-related operation and maintenance costs.

#### S/Q uses sugar canes, but not enough, also solves oil dependency

**Reel 06,** Monte. "Oil Dependence: A Self-Inflicted Paralysis and The Exploration of Brazil as an Alternative Model of Energy Efficiency." Everydayglobalscholars. N.p., 19 June 2006. Web. 03 July 2013. <http://everydayglobalscholars.wordpress.com/2012/12/03/oil-dependence-a-self-inflicted-paralysis-and-brazil-as-an-alternative-model-of-energy-efficiency/>.PL

Sugar cane in Brazil is a surplus crop that is relatively cheap to produce and a lot more environmentally friendly than extracting and producing crude oil for gasoline and other products. It is a favorable alternative to oil on the grounds that it allows for a nation to become less oil dependent. You do not have to worry about the supply of sugar-cane because it can always be grown in excess as long as agricultural needs are met.¶ Producing corn-based ethanol has been common in nations such as the United States. Often fuel sold to the public at gas stations contains up to ten percent ethanol, the remaining ninety percent being processed crude oil. This is a start, but not enough of an effort to make and ensure a real and lasting difference when it comes to energy independence. “Corn-based ethanol is not efficient because it affects the U.S. and world food supply,” Munoz said. “If the U.S. is dedicated to finding a cleaner source of energy, sugarcane-based ethanol is the way to go.”¶ One man said, “I buy gasoline only if I can’t get anything else,” said Alexandre Rigueirra, 28, a Sao Paulo taxi driver who modified his flex-fuel Chevrolet to also use natural gas, which is sold at many locations throughout the country. “Gasoline is always the last option.” Many car producers have created and produced cars that can run very efficiently on little to no gasoline. Many cars that currently run on gasoline have the capacity to run on ethanol and natural gas if their engines are tweaked and they take their cars to be modified.

## Sugar Ethanol Shift

### Sugar Ethanol vs. Corn Ethanol

#### Sugar take less time to be converted in ethanol than corn

Jacobs ‘06

(James Jacobs-Ag Economist USDA Rural Development, September/ October 2006, “Ethanol from Sugar What are the prospects for U.S. sugar co-ops?”, http://www.rurdev.usda.gov/rbs/pub/sep06/ethanol.htm)

More than half of world ethanol production is produced from sugar and sugar byproducts, with Brazil being by far the world leader. Currently, there is no commercial production of ethanol from sugarcane or sugar beets in the United States, where 97 percent of ethanol is produced from corn.¶ Technologically, the process of producing ethanol from sugar is simpler than converting corn into ethanol. Converting corn into ethanol requires additional cooking and the application of enzymes, whereas the conversion of sugar requires only a yeast fermentation process. The energy requirement for converting sugar into ethanol is about half that for corn.¶ However, the technology and direct energy costs are but one of several factors that determine the feasibility of ethanol production. Other factors include relative production costs (including feedstocks), conversion rates, proximity to processing facilities, alternative prices and government policies, facility construction and processing costs. As other countries have shown that it can be economically feasible to produce ethanol from sugar and other new feedstocks are researched, interest in the United States in ethanol production fr om sugar has increased.¶

#### Sugar based ethanol less expensive to produce than corn ethanol and creates more ethanol per acre

Mejean & Hope ‘10

(Aurelie Mejean & Chris Hope, “Modeling the Costs of Energy Crops: A Case Study of US Corn and Brazilian Sugarcane”. Energy Policy 38 (2010) 547-561,http://biowesleyan.wordpress.com/first-generation-biofuels/ethanol/case-study-brazil/sugarcane-vs-corn-based-ethanol/)

Sugarcane-based ethanol has an energy balance that is 7 times greater than that of corn-based ethanol. Energy balance is the difference between the energy expended to convert the crop into ethanol and the amount of energy released from its consumption. There are several reasons why this occurs. First, unlike sugar, only 50% of the dry mass of corn kettles (the starch) can be converted into ethanol. Once this is done, that starch must me converted into sugar before it can be distilled into ethanol. There is no need for these first steps when using sugarcane-based ethanol, for obvious reasons. This significantly reduces the operation costs of sugar-based ethanol compared to corn-based ethanol. The chart below shows the total costs of producing a cubic meter of ethanol in both Brazil and the United States. At the current exchange rate of R$1.91 for every dollar, the total domestic costs to produce a cubic meter of ethanol in Brazil is $450. This is $80 less than the costs to produce a cubic meter of ethanol in the United States, which was calculated to be $530 without the co-product credit. I decided not to count the co-product credit for the U.S. because Brazil has a similar co-product credit (bagasse), which is not accounted for in this study.¶ In addition to Brazil’s lower operating costs, sugarcane-based ethanol is also more productive. On average, an acre of sugarcane-based ethanol produces about twice as much ethanol as its corn-based counterpart.

#### **Sugarcane ethanol won’t cause food shortages- key difference from corn based ethanol**

**Elledge 09**, Nicholas. Sustainable Economic Development Fellow at McKinsey & Company "The Cutting Edge." The Cutting Edge News. Council on Hemispheric Affairs, 2 Nov. 2009. Web. 03 July 2013. <http://www.thecuttingedgenews.com/index.php?article=11745>.¶.MA

After U.S. corn-based ethanol policies helped bring about a global food shortage in 2007, the use of food for fuel has been the Castro brothers’ primary ideological objection to ethanol. However, a distinct difference exists between the utilization of corn and sugarcane, as the latter is not used as a food source. As Wired News reported, “Fidel Castro hated ethanol. He thought it punished the poor by driving up food prices. But Cuba produces a lot of sugar, and with Fidel’s brother Raul – a fan of biofuels – expected to call the shots, Cuba could become a key player in the global ethanol game.”¶ The amount of cultivable land in Cuba used for sugarcane was reduced from 21 to 5 percent between 1991 and 2005, with the transferred lands supposedly earmarked for food crops. However, this re-organization has resulted in almost no additional agricultural output, and Cuba continues to import 84 percent of its low-cost subsidized foods. In fact, food production from 2007 to 2008 declined 8 percent, with advocates insisting that the most effective use of bayetes – small towns surrounding sugar fields – could be in the production of sugar.¶ Some argue that tourism, which in 2001 surpassed sugar as the leading gross hard currency earner in the Cuban economy, is an adequate substitute for the role that sugar once played. However, the tourism industry has proven altogether inadequate for that role. According to a study in 2006, the cost benefit ratio for tourism, as expressed in US dollars, is $0.78 to the dollar, while the comparative ratio for the sugar sector is nearly one-fifth the cost, with a ratio of $0.20 to the dollar.¶ In addition, the formerly thriving sugar sector employed three times as many people as tourism does today. As well, sugarcane over the years has contributed significantly to research and technological development whereas tourism has done little in terms of new technology for the country’s economic and social development. A peaceful coexistence of tourism and sugarcane industries may be the best-case scenario for Cuba; however, claims that tourism unilaterally can be an adequate replacement for the sugarcane industry might be dangerously overblown.¶ As Washington looks to improve relations with the Caribbean nation, the bulk of the responsibility for the lobbying effort will likely fall on the shoulders of both sides of the Cuban population. This will hopefully encourage fair-trade and investment practices based on sugarcane-based ethanol while respecting Cuba’s national sovereignty. The case for U.S. involvement in sugarcane cultivation is straightforward: sugarcane ethanol is exponentially more energy efficient, cheaper, and cleaner than corn-based ethanol. The withholding of trade with Cuba based on the premise of “political prisoners” seems grossly opportunistic if not hypocritical as the U.S. engaged in over $66 billion in bilateral trade with Saudi Arabia last year. All told, the lure of ethanol may make this irresistible.

### Corn Ethanol Bad

#### Congress should rollback the Renewable Fuel Standard – corn ethanol accelerates engine wear, pollutes soil and underground waterways, cannot reduce U.S. oil dependence, raises food prices, and is a waste of tax dollars

Perry 13

Mark J. Perry- a professor of economics at the Flint campus of The University of Michigan and a scholar at The American Enterprise Institute, January 16, 2013, “Production of corn ethanol as an automotive fuel source should cease”, http://www.aei.org/article/energy-and-the-environment/alternative-energy/production-of-corn-ethanol-as-an-automotive-fuel-source-should-cease/)

Among all the problems that have surfaced as a result of using ethanol as an alternative to gasoline, one is especially troubling. It can damage automobile engines and fuel systems. ¶ The Environmental Protection Agency’s (EPA) case for E15, a fuel blend consisting of 15 percent ethanol and 85 percent gasoline, has completely fallen apart, as evidenced by the recent report from the American Automobile Association (AAA) that E15 can cause accelerated engine wear and failure, resulting in costly repairs for unsuspecting consumers.¶ The AAA’s report has again raised the question of whether Congress should roll back the mandate requiring escalating production of ethanol, mainly from corn. The answer is, increasingly, yes.¶ The Renewable Fuel Standard, which Congress enacted in 2005, originally projected that by 2010 the advanced biofuels industry would have taken off. But that has not happened due to many economic and technological barriers that severely limited ethanol’s effectiveness as a fuel. ¶ Cellulosic ethanol made from wood chips, switchgrass, and other sources is still not viable. Consequently, corn ethanol is the only domestically produced biofuel that is available in large quantities to meet the mandates.¶ Corn ethanol is clearly inferior to gasoline as a fuel source for automobiles. Despite a 51-cent-per-gallon tax credit to companies that blend ethanol into gasoline, ethanol costs about 70 cents a gallon more than gasoline on an energy-equivalent basis. Instead of helping consumers, ethanol provides 27% lower fuel economy than gasoline. ¶ Realistically, you have to burn a lot more ethanol-based fuel to create the same amount of energy to power your car, which has unnecessarily driven up the cost of operating a vehicle.¶ "The reality is that ethanol has played almost no role yet in reducing U.S. dependence on foreign oil."¶ -Mark J. Perry¶ And there are serious long-term adverse environmental implications from using corn ethanol. Growing corn to make fuel requires significant amounts of fertilizer and pesticides that pollute the soil, underground aquifers and waterways. The National Research Council has determined that corn ethanol uses significantly more water in its production cycle than gasoline.¶ Over the years, the ethanol lobby has claimed that ethanol would help America achieve energy independence. But the reality is that ethanol has played almost no role yet in reducing U.S. dependence on foreign oil.¶ So far, neither the Administration nor Congress has confronted the fact that 40% of the U.S. corn crop is used to produce ethanol, which has increased retail food prices and strained family budgets in their never-ending struggle to put food on the table.¶ Yet the EPA has twice denied requests to waive the ethanol mandate, most recently in November, even though the corn crop was the smallest in six years due to a severe drought last year in the Midwest. ¶ As the ethanol mandate artificially drives up the production of corn ethanol, more and more people in this country and abroad will have to dig deeper in their pockets to pay for food, underscoring just how misguided the push for ethanol has become as the economy struggles to regain its footing in a sub-par recovery.¶ The first step to adopting a more sensible ethanol policy is to halt the production of E15, since it is caustic and can ruin car engines, while doing nothing to moderate gasoline prices or improve the environment.¶ The Renewable Fuel Standard requires escalating the production of ethanol, ramping up from 13 billion gallons this year to 36 billion gallons by 2022. Unless cellulosic ethanol becomes available, that level of production would require switching the nation’s entire corn crop to the production of corn ethanol. ¶ That would be a recipe for disaster. Congress needs to roll back its mandate. It’s time to stop throwing our tax dollars at ethanol.¶

#### Sugarcane ethanol more energy efficient

**Brennan 10**, John. Bachelor of Science in biology from the University of California, San Diego

"Ethanol Quality of Corn Vs. Sugar Cane | EHow." EHow. Demand Media, 30 May 2010. Web. 05 July 2013.¶ MA  
Because the end product is ultimately the same, the most important distinction between corn and sugarcane ethanol is the energy balance. The process for corn is a little different from the process for sugarcane. Cornstarch must be broken down into sugar before it's used as a feedstock. Both plants also have their own growing requirements and yield different amounts of feedstock per acre. These factors, along with the different climates where they are grown, mean that sugarcane and corn ethanol have a different energy balance. Estimates vary widely. One study in Natural Resources Research in 2005 found that corn ethanol used up to 29 percent more energy than it produced. Another study, published in Proceedings of the National Academy of Sciences in 2006, found that corn ethanol yielded 25 percent more energy than the energy used to produce it. The most common conclusion at present--as cited in a 2007 National Geographic article--is that corn ethanol produces 1.3 times more energy than it consumes, while sugarcane ethanol produces eight times as much energy as it consumes during production.

#### **Diversification of biofuels key to offset corn ethanol**

**Powers 10**, Melissa Assistant Professor of Law, Lewis & Clark Law School” KING CORN: WILL THE RENEWABLE FUEL STANDARD EVENTUALLY END CORN ETHANOL'S REIGN?” Copyright 2010 Vermont Law School Vermont Journal of Environmental Law Symposium, 2010 11 Vt. J. Envtl. L. 667..LexisNexis.MA

The 2005 EPAct achieved its overarching goal of increasing domestic biofuels production. When combined with tax credits, subsidies, and the skyrocketing oil prices of 2007 and early 2008, RFS1 surpassed expectations. However, to the limited extent that Congress and EPA sought to diversify the sources of biofuels and to limit the growth of corn ethanol, RFS1 failed. Corn remains, by far, the dominant biofuel.¶ This failure to diversify is not simply an issue of historical importance, however, because EPA has chosen to retain the RIN system and the equivalence values from RFS1, although it will modify them to a limited degree. [n217](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n217) The waiver provision also still exists, although Congress amended it to allow more parties to petition for waivers. [n218](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n218) Despite these changes, the weak mitigating measures will do little to offset the financial superiority of corn ethanol.

#### Corn based ethanol is overtly inefficient

Jonathan Volinski 2012

( Jonathan Volinski. J.D. candidate 2013, Tulane University Law School; B.A. 2008, Political Science & History, Syracuse University. Mr. Volinski wishes to thank the staff of the Tulane Environmental Law Journal for their continued guidance and support. “Shucking Away the Husk of a Crop Gone Wrong: Why the Federal Government Needs To Replant Its Approach to Corn-Based Ethanol,” Tulane Environmental Law Journal, Summer 2012, Lexis/Nexis)

Another significant drawback of ethanol is that it produces less energy per gallon than gasoline. In fact, the most recent report from the DOE states that E85 contains about 30% less energy (BTUs) per volume than gasoline, which may result in a 25% to 30% decrease in miles driven when compared to gasoline. n66 The lower BTU measurement is simply inherent to the fuel, a built-in characteristic to whatever source the fuel originates from. n67¶ Furthermore, one of ethanol's intrinsic benefits currently works against it. E85 has a high octane rating (around 110), compared to gasoline's lower rating (usually ranging from 87 to 93). n68 As previously mentioned, octane helps engines generate more power. Today's FFVs, [\*516] however, are not built to run on the higher-octane content of ethanol, but on the lower content of gasoline. n69 This is because FFVs must retain dual-fuel capability, and thus are not able to take full advantage of the combustion characteristics of ethanol. n70Therefore, the higher-octane content is essentially wasted, unless using an engine built for higher operating pressures. Some engineers believe that E85 fuel economy could equal that of gasoline if engines were optimized for ethanol, but this has yet to be realized and promises to be more expensive and years away from being available to consumers. n71¶ Another problem with ethanol (or any alcohol-derived fuel) is that water and ethanol readily dissolve in each other, unlike pure gasoline. n72 Water can mix with the fuel in a variety of ways, including groundwater seeping into a storage tank or during refueling. This can cause "phase separation," which results in a layer of water forming beneath a layer of fuel due to the higher density of water. n73 Most engines, unfortunately, draw their fuel from the bottom of their fuel tank and will stop running if they draw in water because water does not burn. n74 This can cause not only lower fuel economies, but also damage to the engine itself. n75 Furthermore, this problem is exacerbated in smaller engines, as with lawnmowers and chainsaws, and severe damage to these engines is not uncommon. n76¶ The wasteful qualities of ethanol have both environmental and economic consequences. Because E85 is less efficient than gasoline, a car running on it will require more of the fuel, which in turn means more GHG emissions. Additionally, while the average price per gallon of E85 [\*517] is comparable to gasoline at $ 3.19, this figure is misleading because it does not correct for the 25% to 30% inefficiency when compared to gasoline. n77 When factoring in this inefficiency, the true price of E85 comes out to $ 4.51 per gallon. n78 For the consumer of E85 this obviously represents a hit to the pocketbook. For many who have already had to cut back on driving because of high gasoline prices combined with the recession, this figure provides little incentive to make the switch to E85.

#### Corn bad – ecosystems and deforestation

**Ogg 07** Ogg, Clay. Environmental Challenges Associated with Corn Ethanol Production. Page 2. National Center For Environmental Economics, Apr. 2007 [h t t p : //yosemite.epa.gov/EE/epa/eed.nsf/ffb05b5f4a2cf40985256d2 d00740681/dd8c211afa92aa14852572b5005ca412/$FILE/2007-05.pdf](http://yosemite.epa.gov/EE/epa/eed.nsf/ffb05b5f4a2cf40985256d2d00740681/dd8c211afa92aa14852572b5005ca412/$FILE/2007-05.pdf).PL

Corn ethanol only supports the former, the energy independence goal. It lacks the environmental credentials of other renewable energy sources (e.g., celulosic ethanol, wind energy, and solar energy). Conservation also benefits consumers (Mufson, 2007), while ethanol programs impose certain costs on consumers. Over reliance on corn ethanol could pressure the land and water base, contributing to a dramatic loss of prairie ecosystems in the U.S. and reducing the influence of compliance programs designed to reduce soil erosion and protect ecosystems. On a much larger scale, reductions in U.S. exports of corn and other crops lead to higher, world commodity prices (Elobeid, et al., 2006). Higher prices can contribute substantially to deforestation in tropical countries (Morton, et al., 2006). Deforestation accounts for 20 percent of the world’s greenhouse gas emissions (National Research Council, 1992; World Resource Institute, 1990). These ecosystem and environmental implications of corn ethanol production largely have been ignored until very recently, but increased concern over global warming, sea rise, and potential threats to life on planet earth (Hansen, 2006), bring the environmental challenges more into focus.

#### Corn ethanol fails – pesticides, pollution, fuel and food prices

**Perry 13** Dr. Mark J. Perry is a full professor of economics at the Flint campus of The University of Michigan, where he has taught undergraduate and graduate courses in economics and finance since 1996. Starting in the fall of 2009, Perry has also held a joint appointment as a scholar at The American Enterprise Institute. <http://www.aei-ideas.org/2013/01/whats-to-like-about-ethanol-it-can-ruins-car-engines-its-bad-for-the-enivornment-and-it-rasises-taxes-gas-and-food-prices/>.PL

Except for a small minority of corn growers and ethanol producers, corn ethanol is a bad deal for everybody else: it damages automobile engines and fuel systems, it’s bad for the environment, it requires billions of dollars extracted from US taxpayers, and it raises fuel and food prices for consumers. That’s my basic argument in my editorial today in Michigan papers, here’s a slice: Corn ethanol is clearly inferior to gasoline as a fuel source for automobiles. Despite a 51-cent-per-gallon tax credit to companies that blend ethanol into gasoline (now expired), ethanol costs about 70 cents a gallon more than gasoline on an energy-equivalent basis. Instead of helping consumers, ethanol provides 27% lower fuel economy than gasoline. Realistically, you have to burn a lot more ethanol-based fuel to create the same amount of energy to power your car, which has unnecessarily driven up the cost of operating a vehicle. And there are serious long-term adverse environmental implications from using corn ethanol. Growing corn to make fuel requires significant amounts of fertilizer and pesticides that pollute the soil, underground aquifers and waterways. The National Research Council has determined that corn ethanol uses significantly more water in its production cycle than gasoline. So far, neither the Administration nor Congress has confronted the fact that 40% of the U.S. corn crop is used to produce ethanol, which has increased retail food prices and strained family budgets in their never-ending struggle to put food on the table. The first step to adopting a more sensible ethanol policy is to halt the production of E15, since it is caustic and can ruin car engines, while doing nothing to moderate gasoline prices or improve the environment. The Renewable Fuel Standard requires escalating the production of ethanol, ramping up from 13 billion gallons this year to 36 billion gallons by 2022. Unless cellulosic ethanol becomes available, that level of production would require switching the nation’s entire corn crop to the production of corn ethanol. That would be a recipe for disaster. Congress needs to roll back its mandate. It’s time to stop throwing our tax dollars at ethanol.

#### Corn ethanol bad -- environment, food prices, jobs, air pollution

**EGW 13** EWG. "Corn Ethanol: Bad for Farmers, Consumers and the Environment." Environmental Working Group. N.p., 2013. Web. 04 July 2013. <http://www.ewg.org/agmag/2013/02/corn-ethanol-bad-farmers-consumers-and-environment> PL

By driving up the price of food and gas and causing costly engine damage, corn ethanol has been bad news for consumers. And by driving up the price of food, corn ethanol is also costing all of us money – by [increasing](http://www.cbo.gov/sites/default/files/cbofiles/ftpdocs/100xx/doc10057/04-08-ethanol.pdf) the cost of federal programs like food stamps and school lunches.But corn ethanol has not just been a disaster for consumers, most farmers, and taxpayers; it’s alsobeen a disaster for the environment – worse, in fact, than Canadian tar sands.That’s according to the [Swiss Federal Laboratories](http://www.empa.ch/plugin/template/empa/*/125527), which concluded that biofuels “often shift environmental burdens toward land-use related impacts.”By dramatically raising the price of corn, the federal corn ethanol mandate has, in just the last four years, contributed to the conversion of 23 million acres from wetland and grassland – an area the size of Indiana – to cropland. In fact, thanks to the corn ethanol mandate, we have lost more than wetlands and grasslands in the last four years than in the previous 40. By encouraging farmers to plow up wetlands and grasslands, the mandate is causing more carbon to be released into the atmosphere, consuming more water to irrigate crops, causing more fertilizer to wash off farm fields and destroying more habitat that supports wildlife – and millions of jobs.What’s more, burning corn ethanol in gasoline releases more benzene, a known carcinogen, and other toxic air pollutants that have been linked to asthma, bronchitis and other respiratory ailments.Thanks to new fuel efficiency standards, the rationale for the corn ethanol mandate created in 2005, and expanded in 2007, has evaporated. So why is Congress continuing to force consumers to use a fuel that increases food and gas prices and is bad for the environment and public health? Now is the time to reduce the use of corn ethanol in our gasoline.

### Dead Zones

#### Iowa corn ethanol plant threatens state’s water supply

Harball & ClimateWire 13

(Elizabeth Harball and ClimateWire, January 28, 2013, “Rising Use of Corn Ethanol Stresses Midwestern Aquifers

Underground water supplies are being pumped at an unsustainable rate thanks to corn ethanol”, http://www.scientificamerican.com/article.cfm?id=rising-use-of-corn-ethanol-stresses-midwestern-aquifers)

Biofuel production is often touted as a boon to rural development, but a University of Iowa engineering professor is worried about the effect of corn ethanol plants on his and other states' water supplies.¶ At a biofuels energy symposium hosted by the Institute of Medicine of the National Academies last week in Washington, D.C., professor Jerald Schnoor said corn ethanol production facilities require large quantities of high-purity water during the fermentation process.¶ This water is obtained from underground aquifers, and as ethanol production reaches a fever pitch in Iowa, the state's water supply is threatened. Even in 2009, Iowa state geologists warned that the Jordan aquifer was being pumped at an unsustainable rate in several counties, exceeding the state's 1975 base line within the next two decades.

#### Ethanol plant uses enough water to supply a 5,000 people

Harball & ClimateWire 13

(Elizabeth Harball and ClimateWire, January 28, 2013, “Rising Use of Corn Ethanol Stresses Midwestern Aquifers

Underground water supplies are being pumped at an unsustainable rate thanks to corn ethanol”, http://www.scientificamerican.com/article.cfm?id=rising-use-of-corn-ethanol-stresses-midwestern-aquifers)

The Lincolnway Energy Plant's 2012 annual report gives a number closer to 100 million gallons [of ethanol] a year, but it does describe its water use as "significant."¶ According to a 2007 report Schnoor authored for the National Academy of Sciences, "because water use in biorefineries is concentrated into a smaller area, such facilities' effects can be substantial locally." The report added that "a biorefinery that produces 100 million gallons of ethanol per year, for example, would use the equivalent of the water supply for a town of about 5,000 people."¶ In the western United States, where corn must be irrigated because precipitation is less reliable, Schnoor said the strain on the underground water supply is even greater.

#### The U.S. production of corn ethanol trades off with water supplies in two ways, and rising temperatures make future production not economically viable.

Williams 13

Mike Williams, 05 June 2013, “As Climate Change Worsens, US Corn Ethanol becomes Uneconomical”, http://oilprice.com/The-Environment/Global-Warming/As-Climate-Change-Worsens-US-Corn-Ethanol-becomes-Uneconomical.html)

Agriculture costs the water supply in two ways: through the drawdown of groundwater from irrigation and through loss to the atmosphere via evapotranspiration (ET), by which water moves through plants and evaporates. Higher atmospheric temperatures increase ET at a cost to groundwater, they wrote.¶ The production of one liter of gasoline requires three liters of water, according to the researchers. The production of one liter of corn ethanol requires between 350 and 1,400 liters of water from irrigation, depending on location. A liter of ethanol also translates into 1,600 liters of ET water that might not directly replenish the local watershed.¶ The growth of crops for ethanol was already questionable because of its impact on the environment. Rising temperatures in the decades to come could lead to reductions in crop yields and an increase in irrigation demands to the degree that the government mandate is no longer economically viable, Dominguez-Faus says.¶ “The projected increases in water intensity due to climate change highlight the need to re-evaluate the corn ethanol elements of the Renewable Fuel Standard.”

### Monoculture

#### **Corn ethanol harmful to the environment**

**Faber 13**, Scott. Vice President of Government Affairs. "Corn Ethanol: Bad for Farmers, Consumers and the Environment."Environmental Working Group. N.p., 4 Feb. 2013. Web. 04 July 2013.¶.MA

By driving up the price of food and gas and causing costly engine damage, corn ethanol has been bad news for consumers.¶ And by driving up the price of food, corn ethanol is also costing all of us money – by [increasing](http://www.cbo.gov/sites/default/files/cbofiles/ftpdocs/100xx/doc10057/04-08-ethanol.pdf) the cost of federal programs like food stamps and school lunches.¶ But corn ethanol has not just been a disaster for consumers, most farmers, and taxpayers; it’s also been a disaster for the environment – worse, in fact, than Canadian tar sands.¶ That’s according to the [Swiss Federal Laboratories](http://www.empa.ch/plugin/template/empa/*/125527), which concluded that biofuels “often shift environmental burdens toward land-use related impacts.”¶ By dramatically raising the price of corn, the federal corn ethanol mandate has, in just the last four years, contributed to the conversion of 23 million acres from wetland and grassland – an area the size of Indiana – to cropland. In fact, thanks to the corn ethanol mandate, we have lost more than wetlands and grasslands in the last four years than in the previous 40.¶ By encouraging farmers to plow up wetlands and grasslands, the mandate is causing more carbon to be released into the atmosphere, consuming more water to irrigate crops, causing more fertilizer to wash off farm fields and destroying more habitat that supports wildlife – and millions of jobs.¶ What’s more, burning corn ethanol in gasoline releases more benzene, a known carcinogen, and other toxic air pollutants that have been linked to asthma, bronchitis and other respiratory ailments.¶ Thanks to new fuel efficiency standards, the rationale for the corn ethanol mandate created in 2005, and expanded in 2007, has evaporated.¶ So why is Congress continuing to force consumers to use a fuel that increases food and gas prices and is bad for the environment and public health?¶ Now is the time to reduce the use of corn ethanol in our gasoline.

#### Current policies fail- continued toll on the environment

**Powers 10**, Melissa Assistant Professor of Law, Lewis & Clark Law School” KING CORN: WILL THE RENEWABLE FUEL STANDARD EVENTUALLY END CORN ETHANOL'S REIGN?” Copyright 2010 Vermont Law School Vermont Journal of Environmental Law Symposium, 2010 11 Vt. J. Envtl. L. 667..LexisNexis.MA

As the science has developed to link corn ethanol and other first-generation biofuels to increased emissions of greenhouse gases, increased conversion of rainforests and peatlands into agricultural lands, and increased localized pollution, U.S. biofuels policy has also begun to change. However, while various advocates have called for the United States to develop a sustainable biofuels policy, neither Congress nor EPA has heeded the call. U.S. biofuels policy, even after the passage of EISA in 2007, will continue to allow production of corn ethanol, and, by definition, will therefore continue to allow biofuels policy to result in various unintended consequences.¶ Yet, U.S. biofuels policy has moved significantly away from its original foundation and, if it continues to progress, could actually serve as a model for biofuels laws in other countries. Congress's decision to define renewable fuels and various categories of advanced and cellulosic fuels according to their greenhouse gas reductions represents a huge step forward in biofuels policy. Most other countries are only now beginning to pass biofuels laws, and none of these establish clear greenhouse gas reduction goals like U.S. biofuels law does. The new definitions in EISA, moreover, have the potential to mitigate the other unintended consequences of biofuels development. For example, EISA defines "advanced biofuels" as a fuel not derived from corn starch. As the volume requirements for advanced biofuels increase in the future, these mandates will be less likely to affect food supplies. The movement away from food crops as a source of fuel could prove to be an especially important development as global populations increase and global food supplies shrink due to climate change and other pressures. Similarly, a future move away from corn ethanol could [\*708] address concerns about localized degradation of water quality, air quality, and habitat, as corn production exacts a particularly harsh toll on the environment.¶ Finally, and perhaps most importantly, the changes in EISA could signal, perhaps ever so slightly, a willingness on behalf of Congress to resist at least some of the demands of the corn lobby. Admittedly, the corn industry will continue to profit immensely from the fifteen billion gallons of corn ethanol that it can continue to produce as a result of the exemptions in EISA. Yet, any limit on the corn industry must be seen, at least on some levels, as a success. For years, critics have argued against corn subsidies and called on politicians to suspend them, to no avail. n308 Some scholars have concluded that the fight against subsidies is doomed to failure and have instead suggested ways for consumers to directly affect the corn industry. n309 Even then, these scholars recognize the near futility in their proposals. n310 Biofuels policy, however, could signal a way to mitigate the power of the corn industry. As science shows the harm that corn ethanol is exacting, and as Congress responds to the science, the corn industry itself may face greater restrictions. For now, EISA's small steps suggest a movement, however slight, towards sustainability.¶ To be sure, U.S. biofuels policy remains flawed, and if Congress does not amend EISA to remove the grandfathering exceptions, corn ethanol will continue to exact an enormous toll on the environment and the economy. Yet, Congress's progress regarding biofuels policy has been quite extraordinary. In 2005, Congress's first RFS placed no limits on corn ethanol production and established pitifully weak standards for advanced biofuels. Only two years later, Congress set aggressive goals for advanced biofuels and required corn ethanol to meet a 20% greenhouse gas emissions reduction requirement. If Congress continues to proceed along this trajectory, U.S. biofuels policy may become truly sustainable. For now, there is at least reason to hope for its future.

#### **First generation biofuels causes food shortages**

**Powers 10**, Melissa Assistant Professor of Law, Lewis & Clark Law School” KING CORN: WILL THE RENEWABLE FUEL STANDARD EVENTUALLY END CORN ETHANOL'S REIGN?” Copyright 2010 Vermont Law School Vermont Journal of Environmental Law Symposium, 2010 11 Vt. J. Envtl. L. 667..LexisNexis.MA

In the first half of 2008, increased food prices around the globe triggered concern that the world economy had entered a food crisis. Food prices during that time had reached their highest levels in fifty years and were placing great stress on people in the poorest countries. [n156](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n156) In response, the United Nations Food and Agriculture Organization (FAO) convened a high-level meeting to discuss the causes of the increased prices. [n157](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n157) Although the organization found that many factors contributed to the food crisis, experts linked first-generation biofuels to the rising prices and, thus, to global food shortages. [n158](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n158)¶ The link between biofuels production and global food prices results from the fact that first-generation biofuels use the very same crops--namely corn in the United States and soy and oil crops in the European Union--that would otherwise go toward global food production. [n159](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n159) In essence, biofuels demand "forge[s] closer linkages between the energy and agricultural markets," exposing agricultural prices to global energy demand. [n160](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n160) Although energy prices have long influenced global agricultural prices, due to the use of machinery and fossil-fuel derived fertilizers and pesticides, biofuels policy integrates energy and agriculture in unprecedented ways. [n161](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n161) This integration indicates that so long as biofuels [\*687] policy relies on food crops to produce energy it will likely continue to drive up food prices

#### Corn ethanol leads to species loss in the Gulf, due to the over use of fertilizers and pesticides and the large amount of water needed to grow corn leads to a draining of aquifers.

Jonathan Volinski 2012

( Jonathan Volinski. J.D. candidate 2013, Tulane University Law School; B.A. 2008, Political Science & History, Syracuse University. Mr. Volinski wishes to thank the staff of the Tulane Environmental Law Journal for their continued guidance and support. “Shucking Away the Husk of a Crop Gone Wrong: Why the Federal Government Needs To Replant Its Approach to Corn-Based Ethanol,” Tulane Environmental Law Journal, Summer 2012, Lexis/Nexis)

The process of raising corn has serious effects upon the land on which it is grown. Most significantly, American corn production "requires more pesticides (which are made from oil) and nitrogen fertilizer (made from natural gas) than any other crop." n79 In addition to the obvious GHG emissions implications of this process, the increased pesticide and fertilizer use exacerbates runoff problems in water supplies across the United States. The effects of the runoff are felt near and far as it makes its way through Midwestern streams to the Mississippi River and eventually to the Gulf of Mexico. n80 The nitrogen-rich runoff chokes the Gulf through the process of eutrophication, causing algae blooms and eventually depriving the water of oxygen. n81 This has led to the unfortunate phenomenon in the Gulf known as the "Dead Zone," an 8000 square mile area (as of 2010) of hypoxic water that is generally not conducive to marine life and has caused massive fish kills. n82 Regrettably, this dead zone is projected to grow, as 2.39 million additional tons of nitrogen fertilizer will be needed to keep up with various mandates (discussed infra) by 2015. n83¶ Growing corn is also a very water-intensive process. The exact amount of water needed varies by region (due to rainfall and availability of natural sources) and can range from 19 gallons per bushel of corn in Iowa, Illinois, Ohio, or Missouri to 865 gallons in North Dakota, South Dakota, Nebraska, and Kansas. n84 Areas like Nebraska, where 72% of the crop is irrigated, place a gigantic strain on already stressed groundwater [\*518] aquifers - specifically, the Ogallala Aquifer, "which lies under the Great Plains and supplies 30% of the nation's groundwater for irrigation, [and] is in danger of running dry." n85 Moreover, processing corn into ethanol also requires substantial amounts of water. While the process is increasingly more efficient, demanding just 3 gallons of water per gallon of ethanol today, down from 6.8 gallons of water per gallon of ethanol a decade ago, it still represents a dramatic strain on an already overtaxed resource. n86¶ These problems are exacerbated by the large amount of corn necessary to produce ethanol. It takes approximately 450 pounds of corn to supply just one SUV with a full tank of fuel. n87 Corn planting will cover 94 million acres in 2012, up from 91.9 million acres in 2011. n88 As a comparison, Montana, the fourth largest state in the nation, covers roughly 93 million acres. n89 One can imagine the toll the pesticides and fertilizers necessary to support that much corn take on the nation's land and water resources. The corn industry shows no signs of slowing down either, indicating that the acreage necessary to support the nation's demand for the crop will continue to grow.

### Climate Change

#### **Sugarcane ethanol is a green and efficient energy source**

Llobet, Morales & Philips 9’Gabriela Llobet – Director, Costa Rican Investment Promotion Agency Hector Morales – U.S. Ambassador to the Organization of American States, Leticia Philips – Director of Government and Institutional Relations Outreach at UNICA CONFERENCE: HARVARD LATINO LAW AND POLICY CONFERENCE: BUILDING BRIDGES: CONNECTING THE US AND LATIN AMERICA: April 23-25, 2009: The 2009 Summit of the Americas and What it Means for Latin America, DA: 7/2/2013 https://litigation-essentials.lexisnexis.com/webcd/app?action=DocumentDisplay&crawlid=1&doctype=cite&docid=13+Harv.+Latino+L.+Rev.+169&srctype=smi&srcid=3B15&key=995582afb8951e6ccc8c30168761491f

One very important point here is how sugar cane has helped mitigate climate change impact and I think this is one of the areas that Brazil and the United States see more. They are in the very same page when it comes to greenhouse gas emissions mitigation. So I want, we believe that just replacing fossil fuels with another biofuel is not enough. We really need to set a [\*137] goal to lower carbon emissions with transportation fuel that is clean and that will not pollute the environment and I wanted to show to you how we do that in Brazil. First and foremost, Brazil has been increasing the mechanization of the harvest of sugarcane. So before when you go to a sugar field in Brazil, there's all of those huge, huge plants. They are about three meters high, which I have no idea how high that is in feet but it's about this tall. At first they would just burn the entire field and people would then come and you know, cut the cane and take it to mill where it would be crushed and processed. Now we have John Deere make these huge machines that are the harvesters, and they come and they sweep the field and not only do they give us the sugar cane, the stalk, they give us this upper part which is the grass. So now we have been developing in partnership with the United States a lot of technology to make this straw into ethanol and bioelectricity. So this is something that we not only gain with carbon emission mitigation but you gain into second generation ethanol production and bioelectricity production. This is how, in our projections, we are going to grow so much into the bioelectricity in Brazil when we use up the straw.¶ Why are we so in love with our sugar cane? Just because it's extremely efficient. In Brazil you can get about 800 gallons per acre of ethanol. When you compare to beets in Europe, or sugar cane in India, or corn in the United states, you can see that you really cannot match what sugar cane gives you in Brazil and we've been working in research and development to find the best plant for each region in Brazil and that's what allows us to have such great yields for the production of bio fuels. In terms of energy balance, sugar cane ethanol is extremely positive. For each fossil fuel unit that we use to produce sugar cane ethanol, you gain 9.3 units of renewable energy, so when you compare to wheat to beets or to corn you see the great difference. If this graph is the outer graph kind of flipped upside down, when you see on the avoided green house gas emissions, what sugar cane ethanol does is really avoid close to 90 percent of green house gas emissions into the environment. Now I'm not sure if you are familiar with this huge very very technical discussion with California, it was actually voted yesterday. California voted on the low carbon fuel standard and they are trying to reduce the carbon density of their transportation fields by 10 percent in the next ten years. Yesterday it was just proved, they are using a lot of science that we don't agree with, but it was proved that sugar cane ethanol is one of the ways that they will be able to reach this goal.¶ This is just really to show you, in terms of carbon uptake, what sugar cane does in Brazil. It ranges from 25 to 41 tons of carbon per hectare, and you see above ground and under ground the roots are extremely deep, and you don't have to replant sugar cane every year like you do with corn and you replenish sugar cane every 5 to 7 years so you avoid losing the soil and minerals for that matter. Also, another great thing is that sugar cane needs very little water to grow and irrigation is pretty much through rain in Brazil. Also in terms of pesticides, we use our own it's called vinasse. It's a very stinky liquid that you make from the process of crushing sugar cane to make [\*138] sugar and that's what we use because it's so rich, that's what we've used to put on the ground for the growth of sugar cane. And then I just want to show you a comparison in terms of carbon uptake between cane and pastures. We have to say that we are not asking the whole country to be fields of sugar cane but we just really wanted to point this out especially because we believe that cattle in Brazil needs to gain an efficiency to make emissions even better.¶ I just wanted to say one more thing on this, that in order to make a green economy and to avoid green house gas emissions, not only political will is needed, you need a lot of leadership and I think we are in a great moment of our time to do that. You know we have great leaders in these 34 countries; there is a lot we can cooperate on. Brazil and the U.S. have an on bio fuels and one of the pillars is cooperating on research and development. I think there is a lot that can be taken from that for this partnership of the Americas, and Brazil is really willing to share technology, to share experience and to help the 100 or so countries throughout the world for that matter to learn about sugar cane and produce it, and make energy available to all. So this is really it, I just hope I can answer your questions.¶

#### **Biofuels solve warming**

**Guerra 12**, Sheyla D. general secretary of the Ibero- American Research Centers and Telecommunications Association (AHCIET). "Granma.cu - SUGAR CANE BIOMASS USED TO GENERATE ELECTRICITY." Granma.cu - SUGAR CANE BIOMASS USED TO GENERATE ELECTRICITY. N.p., 23 Aug. 2012. Web. 03 July 2013. <http://www.granma.cu/ingles/cuba-i/23agost-Cane.html>.¶ MA

Cuba’s Sugar Group enterprise is speeding up one of the country’s major projects in this area: the construction of bio-electrical generating facilities in a select number of mills, with good supplies of cane and reliable industrial operations. The effort is being undertaken in conjunction with the Ministries of Agriculture and Basic Industry.¶ A bio-electric plant is a thermoelectric generating system using non-fossil, environmentally friendly, fuel – in this case residual sugar cane biomass. These plants, which operate with greater steam pressure and efficiency than the sugar mills themselves, can supply electricity 290 days a year. Long term projections through 2020 indicate that this technology will allow for a reduction in carbon dioxide emissions of three million tons a year.¶

#### Sugarcane ethanol mitigates climate change

**Schroeder 10,** Joanna. APR Renewable Energy Advocate, Writer & Consultant "Domestic Fuel." Domestic Fuel. N.p., 4 Feb. 2010. Web. 03 July 2013. <http://domesticfuel.com/2010/02/04/epa-deems-sugarcane-ethanol-an-advanced-biofuel/>.

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Yesterday, the Environmental Protection Agency confirmed in its expanded rules of implementation for the Renewable Fuel Standard (RFS), that ethanol made from sugarcane is considered an advanced biofuel that lowers greenhouse gas emissions (GHGs) by more than 50 percent. Specifically, EPA’s calculations show that [sugarcane ethanol from Brazil reduces GHG emissions compared to gasoline by 61%,](http://domesticfuel.com/2009/10/01/unica-to-epa-sugarcane-ethanol-reduces-ghgs/) using a 30-year payback for indirect land use change (ILUC) emissions.¶ “The EPA’s decision underscores the many environmental benefits of sugarcane ethanol and reaffirms how this low carbon, advanced renewable fuel can help the world mitigate against climate change while diversifying America’s energy resources,” said Joel Velasco, Chief Representative in Washington for the Brazilian Sugarcane Industry Association (UNICA).¶ Brazil is the second largest ethanol producer in the world, behind the U.S., and the largest producer of ethanol made from sugarcane. Sugarcane ethanol, when compared to most types of ethanol produced today, yields less CO2 and can be less expensive for drives to purchase at the pump, this according to UNICA. The organization also says that “many observers point to sugarcane ethanol as a good option for diversifying U.S. energy supplies, increasing healthy competition among biofuel manufacturers and improving America’s energy security.”¶ A recent study in the November 2009 edition of the journal Energy Policy indicated that since 1975, over 600 million tons of CO2 emissions have been avoided thanks to the use of ethanol in Brazil.¶ “We are pleased that EPA took the time to improve the regulations, particularly by more accurately quantifying the full lifecycle greenhouse emission reductions of biofuels. EPA’s reaffirmation of sugarcane ethanol’s superior GHG reduction confirms that sustainably-produced biofuels can play a important role in climate mitigation. Perhaps this recognition will sway those who have sought to raise trade barriers against clean energy here in the U.S. and around the world. Sugarcane ethanol is a first generation biofuel with third generation performance,” said Velasco.¶ UNICA concluded by congratulating the administration for its “transparency and scientific integrity in the environmental rulemaking,” and encouraged other governments around the world to “take note of the manner that EPA has handled this process.”

#### **Sugarcane ethanol emits lower emissions- EPA proves**

**Morrow 13,** Ali. strategic planner at an international advertising agency and is now a fellow of global journalism at the Munk School of Global Affairs "Thanol Trade Undermines U.S. Biofuels Policy." Reuters, 3 July 2013. Web. 5 July 2013.¶ MA  
The debate heated up again in February this year when the Environmental Protection Agency – the U.S. government department responsible for the RFS – decided not to reduce the overall requirement for new-generation biofuels (including sugarcane ethanol), which emit less greenhouse gases than corn ethanol.¶ Without a substantial homemade alternative, the 2.75 billion gallons of new-generation biofuels that U.S. gasoline firms are required to blend into gasoline in 2014 will have to come largely from two sources: bio-diesel from vegetable oil or animal fat, which can only power diesel vehicles, and sugarcane ethanol.¶ The EPA does not consider corn-based ethanol, which is available in ample quantities in the United States, an advanced or new-generation biofuel.¶ But sugarcane ethanol is classed as a new-generation biofuel because it “has a lifecycle GHG (greenhouse gas) emission reduction of more than 50 percent compared to the baseline petroleum fuel it would replace, and that qualifies it as an advanced biofuel under our RFS program”, the EPA told Thomson Reuters Foundation in an emailed response.¶ Emissions from sugarcane ethanol are 30 percent lower than from corn ethanol, according to the EPA. So far, it has been less expensive than bio-diesel, making it the first choice for gasoline companies required to meet the RFS.¶ Environment experts say the United States has two options: continue to undermine the aims of the RFS by encouraging ethanol trade, or change policy to spur a move towards cleaner biofuels.¶ Tim Wise, a director at the Global Development and Environment Institute at Tufts University and a researcher with ActionAid, said incentives need to be put in place to develop advanced biofuels other than imported sugarcane ethanol. Otherwise, “we can see the early warning signs of a worrying trend,” he said.¶ According to current [projections](http://www.ethanol.org/index.php?id=78) in the RFS, the United States will need 15 billion gallons of new-generation biofuels to meet the mandate in 2020 – over 12.25 billion gallons more than this year. If just half of this were met by Brazilian sugarcane ethanol, the shipping alone would pump an extra 3 million tones of CO2 into the atmosphere.

#### Ethanol key to clean air and environment

**ACE ?.** "largest association dedicated to the production and use of ethanol. ACE is a non-profit, membership-based organization of more than 1,500 members nationwide, including: ethanol producers, farmers, investors, the agriculture community, industry suppliers, rural electric cooperatives, and others supportive of the increased production and use of ethanol across America. Mission Statement ACE was formed in 1988 to bring together a wide range of groups in support of ethanol. ACE unites agricultural producers, commodity and farm organizations, ethanol producers, rural electric cooperatives, businesses, and individuals. ACE is organized to promote and expand the development of the ethanol industry, and: to reduce America's dependence on foreign oil imports; to provide a value-added alternative for our farm products; to create public awareness of the uses and benefits of ethanol, at the same time dispelling fears and erroneous product information; to support legislative efforts to promote ethanol usage and to do other things necessary or expedient for the promotion and increased usage of ethanol.American Coalition for Ethanol : Home." American Coalition for Ethanol : Home. N.p., n.d. Web. 03 July 2013. <https://www.ethanol.org/index.php?id=34&parentid=8> PL

Fossil fuel-based gasoline is the largest source of man-made carcinogens and the number one source of toxic emissions, according to the U.S. EPA. Ethanol is a renewable, environmentally friendly fuel that is inherently cleaner than gasoline. Ethanol reduces harmful tailpipe emissions of carbon monoxide, particulate matter, oxides of nitrogen, and other ozone-forming pollutants.¶ The use of ethanol-blended fuel helps reduce the environmental and economic impacts of gasoline consumption on our society.¶ Read more in the research Clearing the Air - a Review of the Real-World Impacts of Using Ethanol-Blended Fuel and in Ethanol: A Convenient Solution to the Inconvenient Truth¶ Ethanol Clean Air Facts:¶ Ethanol blends are likely to reduce carbon monoxide emissions in vehicles by between 10% - 30%, depending upon the combustion technology. (U.S. EPA)¶ The American Lung Association of Metropolitan Chicago credits ethanol-blended fuel with reducing smog-forming emissions by 25% since 1990.¶ The use of 10% ethanol blends reduces greenhouse gas emissions by 12-19% compared to conventional gasoline. (Argonne National Lab)¶ In 2004, ethanol use in the U.S. reduced CO2-equivalent greenhouse gas emissions by approximately 7 million tons, equal to removing the emissions of more than 1 million cars from the road. (Argonne National Lab)¶ Research shows a 35-46% reduction in greenhouse gas emissions and a 50-60% reduction in fossil energy use due to the use of ethanol as a motor fuel. (Argonne National Lab)¶ Ethanol contains 35% oxygen, making it burn more cleanly and completely than gasoline.¶ E85 has the highest oxygen content of any fuel available, making it burn even more cleanly and even more completely than any other fuel.¶ E85 contains 80% fewer gum-forming compounds than gasoline.¶ Ethanol is highly biodegradable, making it safer for the environment.

#### Reduces warming, oil dependency, air pollution

**UNICA and APEX-Brazil no date** "The Brazilian Sugarcane Industry Association [(UNICA)](http://english.unica.com.br/) and the Brazilian Trade and Investment Promotion Agency [(Apex-Brasil)](http://www.apexbrasil.com.br/portal/publicacao/engine.wsp?tmp.idioma=37&tmp.area=478&tmp.texto=) developed this web site to serve as a global information hub on [sugarcane products](http://sugarcane.org/sugarcane-products/sugarcane-products) and their [economic, environmental and social benefits](http://sugarcane.org/sugarcane-benefits) around the world. This website is part of a larger [partnership between UNICA and Apex-Brasil](http://english.unica.com.br/apex/) that aims to promote the benefits of Brazilian[sugarcane ethanol](http://sugarcane.org/sugarcane-products/ethanol) in North America, Europe and Asia. Activities covered by this agreement include participation in international conferences, economic and regulatory intelligence studies, marketing activities, and public relations strategies targeted at key stakeholders. About This Site." — SugarCane.org. Sugarcane Is a Project of UNICA and ApexBrazil, n.d. Web. 05 July 2013.<http://sugarcane.org/unicaglobal/about-this-site>.PL

Sugarcane ethanol is an alcohol-based fuel produced by the fermentation of sugarcane juice and molasses. Because it is a clean, affordable and low-carbon biofuel, sugarcane ethanol has emerged as a leading renewable fuel for the transportation sector. Ethanol can be used two ways:¶ Blended with gasoline at levels ranging from 5 to 25 percent to reduce petroleum use, boost octane ratings and cut tailpipe emissions ¶ Pure ethanol – a fuel made up of 85 to 100 percent ethanol depending on country specifications – can be used in specially designed engines¶ Benefits of Ethanol ¶ Cleaner Air. Ethanol adds oxygen to gasoline which helps reduce air pollution and harmful emissions in tailpipe exhaust. ¶ [Reduced Greenhouse Gas Emissions](http://sugarcane.org/sugarcane-benefits/greenhouse-gas-reductions/greenhouse-gas-reductions). Compared to gasoline, sugarcane ethanol cuts carbon dioxide emissions by 90 percent on average. That’s better than any other liquid biofuel produced today at commercial scale.¶ Better Performance. Ethanol is a high-octane fuel that helps prevent engine knocking and generates more power in higher compression engines.¶ Lower Petroleum Usage. Ethanol reduces global dependence on oil. Sugarcane ethanol is one more good option for[diversifying energy supplies](http://sugarcane.org/sugarcane-benefits/diversification-of-energy-sources).

#### Solves warming – 4 warrants

**UNICA and APEX-Brazil [the date is nonexistent]** "The Brazilian Sugarcane Industry Association [(UNICA)](http://english.unica.com.br/) and the Brazilian Trade and Investment Promotion Agency [(Apex-Brasil)](http://www.apexbrasil.com.br/portal/publicacao/engine.wsp?tmp.idioma=37&tmp.area=478&tmp.texto=) developed this web site to serve as a global information hub on [sugarcane products](http://sugarcane.org/sugarcane-products/sugarcane-products) and their [economic, environmental and social benefits](http://sugarcane.org/sugarcane-benefits) around the world. This website is part of a larger [partnership between UNICA and Apex-Brasil](http://english.unica.com.br/apex/) that aims to promote the benefits of Brazilian [sugarcane ethanol](http://sugarcane.org/sugarcane-products/ethanol) in North America, Europe and Asia. Activities covered by this agreement include participation in international conferences, economic and regulatory intelligence studies, marketing activities, and public relations strategies targeted at key stakeholders. About This Site." — SugarCane.org. Sugarcane Is a Project of UNICA and ApexBrazil, n.d. Web. 05 July 2013.<http://sugarcane.org/unicaglobal/about-this-site>.PL

Sugarcane is a low-carbon building block that can be used to produce a wide range of [clean and renewable products](http://sugarcane.org/sugarcane-products).¶ Probably the most recognized is [sugarcane ethanol](http://sugarcane.org/sugarcane-products/ethanol) which reduces greenhouse gas emissions by 90 percent on average compared to gasoline. That’s the best carbon performance of any biofuel produced at commercial scale. [Learn more about sugarcane ethanol’s evaluation and designation by leading environmental regulators in the United States and European Union.](http://sugarcane.org/sugarcane-benefits/greenhouse-gas-reductions/calculating-greenhouse-gas-savings)¶ Other sugarcane products offer similar low-carbon advantages. Several factors explain why sugarcane can reduce greenhouse gases so significantly compared to other alternatives:¶ Carbon Stocks. In sugarcane fields, carbon stocks amount to 60 tons of carbon per hectare (including above and below ground and soil organic carbon). It means that a lot of carbon is stored in small portions of land, allowing for higher greenhouse gas reductions from the products produced in that area.¶ Semi-Perennial Plant. Sugarcane only needs to be replanted about every six years which reduces tilling of land that releases carbon dioxide. No-till techniques are also strongly encouraged, considerably lowering the amount of fuel necessary to run agricultural machinery in the field.¶ Limited Chemical Use. The application of pesticides in Brazilian sugarcane fields is low and the use of fungicides practically nonexistent. Major diseases that threaten sugarcane are fought through biological control and advanced genetic enhancement programs. Brazilian sugarcane growers also apply relatively few industrialized fertilizers, due to the innovative use of organic fertilizers from recycled production residues. All of it reduces the demand for fossil-based products, improving sugarcane ethanol’s greenhouse benefits.¶ Bioelectricity. Sugarcane mills are energy self-sufficient. They burn leftover stalks and leaves in boilers to produce enough bioelectricity to power their operations and often sell energy back to the grid. Producers can also obtain carbon credits from bioelectricity project.¶ Yields. Each hectare of sugarcane produces more than 7,000 liters of ethanol. It means that with less input, including fossil one, more energy is produced. It boosts greenhouse gas reduction benefits of sugarcane-based products.

#### Expansion of biomass plants in Cuba significantly reduces emissions

Granma 12. [Granma is the official newspaper of the Central Committee of the Cuban Communist Party, “Cane: Providing More Than Sugar,” <http://www.granma.cu/ingles/cuba-i/23agost-Cane.html>, August 23, 2012]

GIVEN the global impact of an economic crisis affecting everything from the production and distribution of food, to energy and the environment, the varied uses of sugar cane have emerged as sustainable alternatives to costlier options. Efforts underway should increase the amount of electricity generated using sugar cane biomass.¶ Cuba’s Sugar Group enterprise is speeding up one of the country’s major projects in this area: the construction of bio-electrical generating facilities in a select number of mills, with good supplies of cane and reliable industrial operations. The effort is being undertaken in conjunction with the Ministries of Agriculture and Basic Industry.¶ A bio-electric plant is a thermoelectric generating system using non-fossil, environmentally friendly, fuel – in this case residual sugar cane biomass. These plants, which operate with greater steam pressure and efficiency than the sugar mills themselves, can supply electricity 290 days a year. Long term projections through 2020 indicate that this technology will allow for a reduction in carbon dioxide emissions of three million tons a year.¶ FOCUS ON BIOMASS¶ Dr. Federico Sulroca Domínguez, senior production specialist for the Sugar Group, commented that, although it may sound exaggerated, the benefits to be reaped from sugar cane go far beyond what is being done currently, around the world and in Cuba.¶ Sugar cane provides food, over and above its many derivatives: sugar, leavening, alcohols... It is used as animal feed, especially during dry periods, alternated with king grass, mulberry, moringa and supplements.¶ "From the environmental point of view, it lowers the levels of carbon dioxide in the atmosphere, through photosynthesis. It provides nutrients and organic material which contribute to soil conservation. And we can add the generation of energy to the aforementioned," the specialist said.¶

#### Cuban biomass development reduces C02 emmisions significantly

UNDP 2005[United Nations Development Programme, UNDP is a ¶ solutions-oriented, knowledge-based development organization that supports countries in ¶ reaching their own development objectives and internationally agreed-upon goals, “Co-generation of Electricity and Steam Using Sugarcane Bagasse and Trash”, http://www.thegef.org/gef/sites/thegef.org/files/gef\_prj\_docs/GEFProjectDocuments/Climate%20Change/Cuba%20Cogeneration%20of%20Elect%20and%20Stream/Project%20Document%20for%20WP.doc]

The expected global benefit of the proposed Project is to reduce Cuba’s energy-related CO2 emissions by substituting biomass (sugarcane bagasse and trash) for fossil fuels (mainly fuel-oil) in power generation. This will be achieved by Project activities designed to remove barriers to the nation-wide deployment of steam and power co-generation using sugarcane bagasse and trash as fuel. The initial reduction in emissions attributable directly to the IPP pilot project is estimated at some 134,000 tons of CO2 per annum. However, as the Project has as its principal objective the removal of the barriers to large-scale replication, the potential for long-term emission reductions is much greater. The scope for replication in Cuba is such that annual emission reductions totalling some 1,369,000 tons of CO2 are considered achievable. International replication based on the Cuban experience could yield substantially higher reductions

### Corn Ethanol Bad for Environment

#### Corn ethanol bad- food shortages and environment- policy changes needed

**Powers 10**, Melissa” Assistant Professor of Law, Lewis & Clark Law School. KING CORN: WILL THE RENEWABLE FUEL STANDARD EVENTUALLY END CORN ETHANOL'S REIGN?” Copyright 2010 Vermont Law School Vermont Journal of Environmental Law Symposium, 2010 11 Vt. J. Envtl. L. 667.LexisNexis.MA

Since the late 1970s, the United States has promoted the use of biofuels in an effort to achieve energy independence from the major oil-producing countries. [n1](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n1) By many accounts, these promotional efforts have met with wild success. Various tax subsidies and tax credits aimed at promoting corn ethanol [n2](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n2) led to an increase in corn ethanol production from 175 million gallons in 1980 to 1.4 billion gallons in 1998 [n3](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n3) to 3.9 billion gallons in 2005. [n4](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n4) In 2005, Congress adopted a more direct approach to promote biofuels by establishing the first federal Renewable Fuel Standard (RFS). [n5](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n5) The RFS required gasoline importers, blenders, and refiners to blend up to four billion gallons of biofuels into gasoline in 2005 and to increase the amount to 7.5 billion gallons by 2012. [n6](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n6) The RFS did better than expected, leading Congress to include increased biofuel-blending requirements in the Energy Independence and Security Act of 2007 (EISA). [n7](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n7) Under EISA, the petroleum industry must, by 2022, blend at least thirty-six billion gallons of biofuels into gasoline. [n8](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n8) Industry experts have little doubt that the biofuel industry will be able to satisfy this requirement. To the extent that U.S. biofuel policy aims to promote domestic energy production, it appears to be well on its way.¶ However, U.S. biofuel policy also aims to mitigate climate change by reducing greenhouse gas emissions, [n9](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n9) and on this front, it has not lived up to [\*669] its promises. In theory, biofuels should be "carbon-neutral," because the amount of carbon dioxide they release during combustion should be offset by the amount of carbon dioxide the plants sequester during their growth. [n10](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n10) However, these emissions offsets do not necessarily account for all greenhouse gas emissions that could directly result from agricultural and production practices. [n11](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n11) For example, fertilizer use and soil tilling can result in high emissions of nitrous oxide, a potent greenhouse gas. [n12](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n12) Converting corn starch into ethanol usually requires a substantial amount of energy, and if coal-fired power plants supply the energy, ethanol production can emit large quantities of greenhouse gases. [n13](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n13) Thus, depending upon various factors, direct emissions from biofuels may exceed emissions from fossil fuels.¶ More importantly, when the global consequences of U.S. agricultural and biofuels policies are considered, crop-based biofuels--and corn ethanol, in particular--appear likely to cause significant increases in greenhouse gas emissions. [n14](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n14) The United States is one of the world's largest exporters of agricultural crops, and many developing countries depend on U.S. food imports to meet their basic food needs. [n15](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n15) U.S. biofuel policy has prompted many agricultural interests to shift away from food production in favor of domestic biofuel production. [n16](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n16) This, combined with several other [\*670] factors, has contributed to soaring global food prices and food shortages in developing countries. [n17](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n17) In response, many developing countries have begun or will begin clearing forests and peatlands to increase their own food production. [n18](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n18) Additionally, other countries have begun clearing land to produce their own biofuels to export to the United States and Europe. [n19](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n19) These land use changes, particularly where they would convert rainforests and peatlands into agricultural lands, could release massive amounts of carbon dioxide and other greenhouse gases. [n20](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n20) One study found that U.S. biofuels policy would "double[] greenhouse [gas] emissions over 30 years and increase[] greenhouse gases for 167 years." [n21](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n21) Many other studies have concluded that any U.S. biofuels policy that allows biofuels to come from food crops will result in more greenhouse gas emissions than it will prevent. [n22](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n22) Policymakers have therefore begun to propose changes to U.S. biofuels policy to align it with its overarching goal of reducing emissions.

#### **Corn ethanol bad- causes climate change**

**Powers 10**, Melissa Assistant Professor of Law, Lewis & Clark Law School” KING CORN: WILL THE RENEWABLE FUEL STANDARD EVENTUALLY END CORN ETHANOL'S REIGN?” Copyright 2010 Vermont Law School Vermont Journal of Environmental Law Symposium, 2010 11 Vt. J. Envtl. L. 667. Assistant Professor of Law, Lewis & Clark Law School.LexisNexis.MA

First-generation biofuels may also, ironically, result in increased greenhouse gas emissions. [n163](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n163) Corn ethanol produced in the United States may have the worst impact on greenhouse gas emissions. [n164](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n164) EPA initially estimated that direct emissions from corn ethanol production, including emissions from growing the corn and processing corn starch into ethanol, likely exceeded fossil fuel emissions from gasoline by more than 10%. [n165](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n165) These increases result from emissions of greenhouse gases from the soil [n166](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n166) and the fossil fuels consumed at ethanol production facilities, most of which use natural gas or coal power. [n167](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n167)¶ When researchers add the consequences of indirect land use changes into their estimates, most studies show significant increases in overall greenhouse gas emissions. [n168](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n168)Economists predict that increased commodity prices associated with biofuels production will increase pressure for developing countries to convert non-agricultural land into cropland so that they can either produce their own food crops (to reduce local food prices) or their own biofuels (to increase exports and take advantage of the higher global fuel prices).[n169](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n169) Many developing countries will likely convert rainforests and peatlands, which currently sequester significant amounts of greenhouse gases, into agriculture lands. [n170](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n170) This, in turn, could release massive amounts of greenhouse gases into the atmosphere and thus offset [\*688] the direct reductions that biofuels may otherwise achieve. [n171](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n171) EPA's initial assessment of lifecycle greenhouse gas emissions from U.S. corn ethanol, when considering indirect land use changes, concluded that it would take between twenty-two and seventy-five years (depending on whether coal or biomass powers the ethanol production facility) for corn ethanol production to achieve a 0% increase in emissions, and more than 100 years for a coal-fired ethanol plant to achieve a 20% greenhouse gas emissions reductions. [n172](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n172) Although EPA revised these estimates based on different assumptions about crop yields and the types of land conversions that would result from increased ethanol use, [n173](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n173) the weight of the evidence shows that first-generation biofuels will spur increased land use changes in other countries, and these land-use changes may increase global greenhouse gas emissions for a period of time. [n174](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n174) Thus, ironically, many biofuels policies designed to mitigate climate change may ultimately have the opposite effect.

#### **Corn Ethanol bad- kills local environment and food prices**

**Powers 10**, Melissa Assistant Professor of Law, Lewis & Clark Law School” KING CORN: WILL THE RENEWABLE FUEL STANDARD EVENTUALLY END CORN ETHANOL'S REIGN?” Copyright 2010 Vermont Law School Vermont Journal of Environmental Law Symposium, 2010 11 Vt. J. Envtl. L. 667..LexisNexis.MA

Corn growing exacts a heavy toll on water quality, air quality, and wildlife habitat, as several studies have documented for many years. [n126](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n126) Corn subsidies have also generally favored large agribusiness companies rather than small farmers, and have contributed to the concentration of agriculture business in the hands of relatively few players. [n127](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n127)Subsidies for corn ethanol only enhance these harmful environmental and economic effects by adding even greater incentives for corn production and by continuing to allow large corporations to benefit from the subsidies. [n128](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n128)¶ 1. Localized Environmental Impacts¶ Other articles have extensively documented the environmental consequences of expansive corn production. [n129](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n129) This article will not repeat their findings, except to highlight some of the major impacts to the environment from intensive corn production. Corn production has a particularly profound impact on water quality and supply. [n130](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n130) Corn is an [\*684] extremely input-intensive crop, which requires massive amounts of water [n131](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n131) and typically large amounts of fertilizers, herbicides, and pesticides to grow. [n132](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n132) Chemicals added to the crops frequently run off into surface waters or leach into groundwater and contaminate water supplies. [n133](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n133) One particular herbicide used on corn, called atrazine, pollutes many water bodies in the Midwest and has been linked to hermaphrodism in frogs and other amphibians. [n134](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n134) Nitrogen fertilizers, which farmers apply heavily to corn crops, have also created particular problems in many aquatic areas by causing "dead zones" that can kill all immobile organisms within low oxygen areas. [n135](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n135) EPA anticipates that water quality will continue to suffer as corn ethanol production increases. [n136](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n136)¶ Corn production and corn ethanol production also contribute to loss of soil, air quality deterioration, and loss of habitat. [n137](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n137) Intensive agriculture typically involves the tilling of soil, which increases the likelihood of erosion and airborne transport of soils. [n138](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n138) Chemicals applied to crops can become airborne, along with the soil, and create a risk of exposure to humans and other animals. [n139](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n139) Ethanol production and combustion also release chemicals that can contribute to air pollution and public health risks. [n140](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n140) Although adding ethanol to gasoline may reduce emissions of some pollutants from motor vehicles, [n141](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n141) ethanol can also increase emissions of other pollutants. [n142](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n142) Whether ethanol yields net benefits in air quality remains difficult to determine. [n143](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n143)¶ It is clearer, however, that increased corn production has reduced, and will likely continue to reduce, wildlife habitat, as it has done for decades. [n144](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n144) As discussed in greater detail below, Congress amended the RFS to allow biofuels to qualify as renewable fuels when they are grown on certain types of land. EPA has decided to include lands that would otherwise be set aside [\*685] for conservation as qualifying lands for corn ethanol production under EISA. [n145](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n145) Since these lands would otherwise provide habitat for animals displaced by agricultural practices, it is likely that wildlife habitat will continue to decline due to corn ethanol production. [n146](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n146) None of these outcomes, however, are particularly surprising. Agriculture has always exacted a heavy toll on the natural environment, and increased agricultural production will predictably do the same.¶ 2. Domestic Economic Impacts of Increased Corn Ethanol¶ The economic consequences of increased corn ethanol production--at least to the extent that they affect ongoing subsidies--also present few surprises. Despite the image of U.S. agricultural policy as promoting small family farms, farm bills have instead propped up large agribusiness enterprises for almost as long as farm subsidies have existed. [n147](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n147) Most observers expect increased renewable fuel mandates, and the accompanying per gallon tax credits, to further aid these large corporations. [n148](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n148) Indeed, Congress changed the eligibility requirements under the Small Ethanol Producer Credit so that "small producers" can receive a $ 0.10 per gallon tax credit so long as they produce no more than sixty million gallons of ethanol. [n149](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n149) Before the change, the maximum production level topped out at thirty million gallons. [n150](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n150) These increased subsidies to larger corporations will likely result in a further decrease in smaller farms and an increase in the political power of the corporations. [n151](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n151)¶ Increased corn ethanol production will also likely affect the prices of corn, other crops, and agricultural commodities worldwide. Ethanol already competes with other consumptive uses of corn, and increased ethanol mandates will likely contribute to increased costs for cattle feed and [\*686] other food products. [n152](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n152) If farmers dedicate more land to corn production, as the existing subsidies and mandates should incentivize, available land for soy and wheat will decline, leading to a reduction in soy and wheat supplies. [n153](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n153) Reduced supplies of these products will increase their prices, leading to increased production on whatever land is available. [n154](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n154) Globally, this could spur increased food prices in the near term, and increased food production in the longer term. [n155](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1372899342493&returnToKey=20_T17727049272&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.21621.58945197157" \l "n155) As discussed in the next sections, these developments could ultimately undermine one of the driving purposes of the RFS--reducing global greenhouse gas emissions.

#### Corn based ethanol is not as environmentally friendly as is claimed. It uses 29% more fossil fuels and its returns are minimal. Prefer our evidence. Empirically proponents of corn ethanol have used flawed methodologies to prove corn is good.

Jonathan Volinski 2012

( Jonathan Volinski. J.D. candidate 2013, Tulane University Law School; B.A. 2008, Political Science & History, Syracuse University. Mr. Volinski wishes to thank the staff of the Tulane Environmental Law Journal for their continued guidance and support. “Shucking Away the Husk of a Crop Gone Wrong: Why the Federal Government Needs To Replant Its Approach to Corn-Based Ethanol,” Tulane Environmental Law Journal, Summer 2012, Lexis/Nexis)

A net energy benefit (NEB) refers to whether "the energy value in the fossil fuel used to make ethanol is less than the energy value derived from the ethanol that is produced." n57In an era of growing concern over the consequences of global warming, the NEB bears directly upon whether ethanol reduces total GHG emissions. It is far from certain that it does. Total GHG emissions from ethanol are dependent upon both the type of feedstock and the type of fossil fuel used in the ethanol manufacturing process. n58¶ For a fuel that is often touted as being the greener alternative, the science is surprisingly mixed. One oft-cited study completed by Argonne National Laboratory (through the DOE) concluded in 1999 that use of E10 (10% ethanol and 90% gasoline by volume) would result in a 1% reduction in GHG emissions (per vehicle mile traveled) and that use of E85 (85% ethanol and 15% gasoline by volume) would result in a 14-19% reduction in GHG emissions (per vehicle mile traveled). n59¶ The USDA has also come to similar conclusions. In its most recent update, the agency calculated the NEB by measuring all conventional fossil fuel energy used in the production of one gallon of corn ethanol. n60 The agency's findings, expressed in a ratio, is "about 2.3 BTU of ethanol for 1 BTU of energy inputs, when a portion of total energy input is allocated to byproduct and fossil fuel is used for processing energy." n61¶ Studies not funded by the U.S. government have been much more critical of corn ethanol. A study done by Professors David Pimentel and Tad W. Patzek criticized the USDA's methodology for, among other [\*515] things, only including corn data from several states instead of all fifty and omitting inputs such as the energy required to produce and repair farm machinery. n62 This report concludes that ethanol production using corn requires 29% more fossil energy than the ethanol fuel produces. n63¶ Further inquiries evidence the relatively meager benefits (if any at all) of corn ethanol when compared to cellulosic sources of ethanol. One study reports that replacing corn with perennial cellulosic feedstocks switchgrass and miscanthus would result in GHG emissions reductions of an astounding 29% to 473%. n64¶ Even those who concede that corn ethanol has a positive NEB argue that it is too small to justify corn's status as a "big winner" in the world of alternative fuels. n65 In a world growing increasingly concerned with global warming and reducing GHG emissions, corn ethanol may not deliver the results so many have promised.

## Solvency

### Cuba Says Yes

#### Cuba’s ethanol production is open to for investment

**BiofuelsChat 12** "Cuban Ethanol Production May Open up to Foreign Investment." Latest BioFuels News and Information Relating to Renewable Energy Production and Use RSS. N.p., 21 Jan. 2012. Web. 02 July 2013. <http://www.cubastandard.com/2012/01/20/cuban-ethanol-production-may-open-up-to-foreign-investment/> .PL

Overcoming the objections of Fidel Castro, the Cuban government is beginning to consider large-scale ethanol production on the sugarcane-rich island, a Brazilian official said.¶ Investment opportunities for Brazilian companies in ethanol production in Cuba are about to open up, said Foreign Ministry spokesman Tovar Nunes after a visit of Foreign Minister Antonio Patriota to Cuba in January, according Folha de São Paulo.¶ “Fidel’s resistance in this field is being overcome,” Nunes said.¶ The historical leader of the Revolution, forced by illness to leave the presidency in 2006, has repeatedly warned in his columns that crop-based ethanol puts pressure on food production and food prices, thus hurting the poor. Supporting Fidel’s criticism, Venezuela and the ALBA bloc have so far abstained from promoting ethanol production.¶ Cuba could manufacture close to 2 billion gallons of ethanol per year, according to Jorge Hernández Fonseca, a Cuban-born researcher with the Universidade do Estado do Pará in Brazil. This would make Cuba the world’s third-largest ethanol producer after Brazil and the United States.¶ Cuba’s sugar industry has undergone a massive restructuring since 2004, with closings of more than half the country’s sugar mills and reduction of sugarcane cultivation. As part of the restructuring, the government has touted production of sugarcane byproducts, with the exception of fuel ethanol. Even so, it quietly modernized existing “alcohol” production facilities in 2006 and 2007.

#### Cuba has the physical capabilities of applying biofuel now

News Track India 12 "Cuba Tests Biofuel Vehicle Successfully."Http://www.newstrackindia.com/newsdetails/2012/7/23/77-Cuba-tests-biofuel-vehicle-successfully.html. News Track India, 23 July 2012. Web.PL

A vehicle was tested with biofuel for the first time in Cuba by running an automobile for 1500 kms using biofuel produced from the jatropha plant, state-run media reported Sunday.¶ To carry on the test the part of first 400 litres of the biofuel produced by the plant were mixed in a ratio of 70:30 with diesel to ignite a 2007 Toyota Hilux, the head of the Applications Center for Sustainable Development, engineer Jose Sotolongo, said.¶ The biodiesel was produced using the oil of Jatropha curcas, which is an inedible angiosperm, at a factory that was opened a week earlier in the eastern province of Guantanamo.¶ The factory is build with a capacity of producing more than 100 tonnes per year of liquid biofuel.¶ The official said that the vehicle used in the test is part of the BIOMAS-CUBA project, along with the participation of several government departments and the support of the Swiss Development Cooperation Agency.¶ He said that just after a week of testing the biodiesel, the automobile was seen running more effeciently than normal, a situation he attributed to the lubricating effects of the jatropha oil, state news agency AIN reported.¶ Moreover, the biofuel can also be efficiently used in gasoline-powered vehicles but "in the proper proportion", added Sotolongo.¶ Among the project's advantages, promoters emphasized, that the purpose behind using an inedible plant for production is not to compete with the island's food production, in contrast to other nutritive species - including corn and sugarcane - that are being used by other countries in similar biofuel production projects.¶ The project is being subsidized by the Cuban state with a vision to integrate energy and food production on the local scale rather than using human food crops to supply fuel.

#### **Cuba ready to expand ethanol production now**

Cuba Standard 12. (No author, News resource for Cuban business and economic news, “Cuban ethanol production may open up to foreign investment”, <http://web.archive.org/web/20120206071529/http://www.cubastandard.com/2012/01/20/cuban-ethanol-production-may-open-up-to-foreign-investment/>, January 20, 2012)

Overcoming the objections of Fidel Castro, the Cuban government is beginning to consider large-scale ethanol production on the sugarcane-rich island, a Brazilian official said.¶ Investment opportunities for Brazilian companies in ethanol production in Cuba are about to open up, said Foreign Ministry spokesman Tovar Nunes after a visit of Foreign Minister Antonio Patriota to Cuba in January, according Folha de São Paulo.¶ “Fidel’s resistance in this field is being overcome,” Nunes said.¶ The historical leader of the Revolution, forced by illness to leave the presidency in 2006, has repeatedly warned in his columns that crop-based ethanol puts pressure on food production and food prices, thus hurting the poor. Supporting Fidel’s criticism, Venezuela and the ALBA bloc have so far abstained from promoting ethanol production.¶ Cuba could manufacture close to 2 billion gallons of ethanol per year, according to Jorge Hernández Fonseca, a Cuban-born researcher with the Universidade do Estado do Pará in Brazil. This would make Cuba the world’s third-largest ethanol producer after Brazil and the United States.¶ Cuba’s sugar industry has undergone a massive restructuring since 2004, with closings of more than half the country’s sugar mills and reduction of sugarcane cultivation. As part of the restructuring, the government has touted production of sugarcane byproducts, with the exception of fuel ethanol. Even so, it quietly modernized existing “alcohol” production facilities in 2006 and 2007.¶ Thanks to more than three decades of massive sugarcane ethanol production, Brazil-based companies are world leaders in that field. Expanding beyond their domestic market, Brazilian businesses have invested in ethanol production in Caribbean and Central American countries over the past five years.¶ President Dilma Rousseff is scheduled to visit Cuba Jan. 31, accompanied by a large business delegation.

#### **Cuba’s experience with sugar cane make them the best option for biofuel expansion**

Granma 12. [Sheyla Delgado Guerra, “Cane: Providing More Than Sugar,” <http://www.granma.cu/ingles/cuba-i/23agost-Cane.html>, August 23, 2012]

GIVEN the global impact of an economic crisis affecting everything from the production and distribution of food, to energy and the environment, the varied uses of sugar cane have emerged as

Sugar Group analyst Osiris Quintero López told Granma that during the 2011-2012 production season, the 46 mills operating generated 540,000 megawatt/hours of electricity and contributed their surplus to the National Electrical System (SEN) grid, enough to meet the energy needs of 576,500 households, based on the national residential average.¶ According to Bárbara Hernández Martínez, in charge of the generation of electricity for the Sugar Group, an efficient mill should have enough sugar cane bagasse to generate all the electricity needed for the refining process, in addition to a surplus which can be used to supply energy when the mill is idle, and to contribute to the national grid. All mills across the island are connected to the SEN, and have the necessary agricultural and industrial infrastructure to contribute energy, the specialist reaffirmed.¶ Nevertheless, there is significant unused potential. What has been accomplished thus far is modest, since, during the refining process, mills use steam at a low pressure, allowing for the generation of only 40 kilowatt/hour per ton of cane processed. The technology used when the mill is not refining sugar is fundamentally inefficient for the generation of electricity.¶ Exploiting the energy available in cane biomass will require prioritizing efficiency, as well as better equipment in mills and fields. If larger agricultural yields are attained, with more cane per hectare, and industrial parameters maintained, sugar production, as well as the generation of electricity, can be increased. Cuba’s tradition and vast experience with sugar cane can provide the knowledge and human resources to take better advantage of this highly useful plant.¶ The country currently depends heavily on imported oil for many industrial processes, with close to 93% of electricity generated using fossil fuels. This kind of dependency is not ideal. Efforts underway should increase the megawatts provided by cane biomass to replace the use of ‘black gold’ and contribute to the sustainability of Cuba’s economy. ¶

#### Huge potential for a shift to sugarcane biomass energy production in Cuba now

Perez 12/20/12. [Ricardo Torres Perez, Assistant Professor at the Centro de Estudios de la Economía Cubana (CEEC) of Universidad de La Habana, “Cuba’s energy problem and oil in the Gulf of Mexico,” <http://www.cubastudygroup.org/index.cfm/files/serve?File_id=6f82a901-4825-4803-9b04-ad9bf45d4169>, December 20, 2012]

Cuba has historically suffered from an acute dependence on foreign sources to meet its energy needs. ¶ Until now, the island has had a small supply of conventional energy resources such as oil1¶ , gas and ¶ coal, key sources in the current energy model. During the last century, and for different reasons, the ¶ country concentrated its oil imports in two major contemporary economic and military powers, the U.S. ¶ and the extinct Soviet Union. The analysis of the evolution of this dependence is essential to explain the ¶ possibilities of development for the country. Therefore, any event with the power to mitigate this constraint ¶ has sizeble economic and geopolitical significance for the Caribbean nation.¶ After 1959, the Soviet Union became the quintessential foreign supplier. Preferential supply conditions notably eased the pressures of the road towards diversified energy and greater weight for domestic sources, ¶ although there was a breakthrough in energy production from sugarcane biomass, logical result of the growth in volumes of sugarcane. Twenty-two years ago, that model was in crisis. The country was forced to severely restrict consumption between 1990 and 1995, which was only partially relaxed to the extent that the economy left this critical period in the early nineties. The symbol par ¶ excellence was the blackout, an extreme measure used frequently in ¶ exceptional circumstances.¶ One of the immediate responses to alleviate the situation was the ¶ decision to double efforts to increase domestic oil production. That attempt was made feasible by the participation of foreign companies, under a scheme of risk contracts. The results have been very good, increasing ¶ output by nearly six times in the period. Progress was also made in the use of natural gas, which plays a major ¶ role in the generation of electricity2¶ and the supply of fuel for cooking in the capital of the country. In both ¶ examples, the role of foreign investment has been crucial. But, ironically, alongside the growing oil production, the availability of bagasse was reduced due to the progressive reduction of cane production. Therefore, the benefits offered by this technology were not taken advantage of, a sector that has proven to have great potential to be incorporated as a key component of a diversified energy mix with less pollution and a greater contribution of national resources. This contribution ¶ has materialized in other counties such as Brazil and Mauritius, where sugarcane energy has positioned itself ¶ as a real and viable alternative to traditional fuels.¶ Another problem that has plagued the country in the last two decades is the steady deterioration of the infrastructure related to energy production and distribution, which has suffered from an acute shortage of investment resources for replacement and expansion of its capacity. ¶ The result is that a substantial portion of the energy produced does ¶ not reach its final destination4¶ , while recurrent interruptions occur in ¶ the supply chain, affecting the performance of the production entities ¶ and the population’s living standards. This decline reached alarming levels in the summer of 2004, a situation ¶ that prompted a response from the Government in the form of a medium-term program aimed at recovering ¶ the installed capacity, increasing the contribution of renewable sources, improving the state of the transmission networks and distribution and increase energy efficiency, based on the use of modern equipment in the ¶ generation, transportation and cooking.¶ While new vitality was regained in electricity generation and many inefficient equipments were replaced, the transformation of the energy matrix has been more modest. There is still dependence on fossil fuels for electricity production, and among renewable sources, the use of sugarcane biomass has not played a major role, and rather its role has diminished. While the current supply has been guaranteed from beneficiary agreements ¶ with Venezuela, it continues to represent a heavy burden on the country’s foreign accounts and has become ¶ a highly vulnerable situation arising from the systemic concentration of purchases in preferential terms in a ¶ preferred specific market.¶ In this complex scenario there has been an intense debate about the ¶ likely impact of the discovery and exploitation of large deposits of ¶ light oil, particularly in the country’s Exclusive Economic Zone in ¶ the Gulf of Mexico. The main idea to further this discussion is that ¶ this event has the potential to change, not only the energy situation ¶ in the medium term, but economic development itself. For the first ¶ time, a window of opportunity would open to realistically reduce the ¶ external dependence in this area, which would increase the degree ¶ of freedom in the conduct of international economic policy, including ¶ the current conflict with the United States.

#### Need a lot of stuff---for solvency

Specht 13

[Jonathan-J.D. Wash. U St. Louis, Legal Advisor, “Raising Cane: Cuban Sugarcane Ethanol’s Economic and Environmental Effects on the United States,” Environmental Law & Policy Journal, Univ. of California Davis, Vol. 36:2, <http://environs.law.ucdavis.edu/issues/36/2/specht.pdf>]

To speak of a Cuban sugarcane-based ethanol industry is, at this point, largely a matter of speculation. n46 Because of the anti-ethanol views of Fidel Castro (who has said that ethanol should be discouraged because it diverts crops from food to fuel), n47 Cuba currently has almost no ethanol industry. In the words of Ronald Soligo and Amy Myers Jaffe of the Brookings Institution, "Despite the fact that Cuba is dependent on oil imports and is aware of the demonstrated success of Brazil in using ethanol to achieve energy self-sufficiency, it has not embarked on a policy to develop a larger ethanol industry from sugarcane." n48 There is, however, no reason why such an industry cannot be developed. As Soligo and Jaffe wrote, "In addition, Cuba has large land areas that once produced sugar but now lie idle. These could be revived to provide a basis for a world-class ethanol industry. We estimate that if Cuba achieves the yield levels attained in Nicaragua and Brazil and the area planted with sugarcane approaches levels seen in the 1970s and 1980s, Cuba could produce up to 2 billion gallons of sugar-based ethanol per year." n49¶ The ideal domestic policy scenario for the creation of a robust Cuban sugarcane ethanol industry would be a situation in which: the U.S. trade embargo on Cuba is ended; U.S. tariff barriers are removed (in the case of sugar) or not revived (in the case of ethanol); and the RFS requiring that a certain percentage of U.S. fuel come from ethanol remain in place. Of course, changes in United States policy alone, even those that ensure a steady source of demand [\*180] for Cuban sugarcane-based ethanol, would not be enough to create an ethanol industry from scratch. Cuba will need to foster the industry as a key goal of the post-Castro era and shape its domestic policies to encourage the growth of the industry.

### Foreign Investment Key

#### External agent key to Cuban econ growth

Feinberg ‘11

(Richard Feinberg, November 2011, “Reaching Out: Cuba’s New Economy and the International Response”, http://www.brookings.edu/research/papers/2011/11/18-cuba-feinberg)

Many Cubans remain suspicious of the IMF and World Bank, viewing them as agents of “capitalist imperialism.” Yet, the IFIs have worked successfully in promoting poverty alleviation and economic growth in two of Cuba’s closest allies, Vietnam and Nicaragua. To ally Cuban anxieties, Section 5 explores the IFI’s new terms of engagement, designed to be more sensitive to the national institutions and policy priorities of borrowing countries. The IFIs today partner successfully with many countries whose stated goals are growth with equity, efficiency with dignity—the very goals embraced by Cuban authorities.¶ This study (Section 1) opens with a discussion of the accomplishments and shortcomings of the ailing Cuban economy: the paradox of the Cuban revolution is that while it endowed its citizens with abundant human capital it has sadly left them without the tools or incentives to fully employ their acquired talents. The Cuban economy is characterized by sagging industrial and agricultural production, insufficient savings and investment rates, poor export performance and chronic deficits in merchandise trade, and repeated suspensions of service on external debts. The scarcity of consumer necessities, over-crowded housing, and the indifferent quality of services make daily life in Cuba especially challenging, and ambitious Cuban youth are frustrated at the lack of attractive opportunities for productive and well-paid employment.¶ The Cuban government recognizes these deficiencies and in April 2011 promulgated reform “guidelines” with 311 initiatives aimed at addressing these and other structural flaws. The guidelines are replete with internal contradictions and continue to render homage to central planning; but the pro-reform fractions were strong enough to insert language which, if acted upon, would transform Cuban political culture and social ethics. As this study suggests, in our interdependent world, external agents—such as national economic cooperation agencies and the IFIs—can legitimately transfer ideas and resources that increase the authority of reformers in their internal struggles against the entrenched forces of inertia and resistance. Notwithstanding its centralized leadership, Cuba, like the United States, is hardly a unitary actor.

#### **Sugarcane biomass produced 10% of Cuba’s power at peak production, only requires investment now.**

Grogg 7’

Patricia Grogg was born in Chile, but lives in Cuba. She shares the Cuban Correspondent duties with Dalia Acosta. Grogg worked as a Correspondent and contributor for the Mexican newspapers and as a Reporter, Editor and Assignment Editor for the Cuban agency Prensa Latina. IPS (Inter Press Service)Jun 1 2007 (IPS) “CUBA: Sugarcane – Source of Renewable Energy, But Not Ethanol,”http://www.ipsnews.net/2007/06/cuba-sugarcane-source-of-renewable-energy-but-not-ethanol/ DA: 7/3/2013

Cuban researchers continue to see the sugar industry, for decades the motor of the Cuban economy, as a strategic sector capable of producing food products for human and animal¶ consumption, generating electricity from bagasse – the fibrous by-product of sugar extraction from cane stalks – or producing alcohol and even pharmaceutical products.¶ When the sugarcane industry was at its height, producing harvests of up to eight million tons, it generated around 10 percent of the electrical power produced in Cuba. But with the¶ drop in production seen over the past decade, the proportion of electricity that it produces shrank from 10 to 5.6 percent, between 1990 and 2002.¶ In 2002, the sugar industry underwent a major restructuring that involved the closure of half of the country’s 156 sugar mills, in order to bring production levels into line with¶ international prices, which had dropped at that time to around six cents a pound.¶ “The first source of renewable energy remains sugarcane biomass, and if the strategy for the future is to produce energy in a decentralised manner and with diversified sources, this¶ should be one of them,” Cuban expert Julio Torres commented to IPS.¶ A large part of the mills that survived the restructuring and remain active upgraded their installations in order to generate their own energy supplies, although they do not yet produce a¶ surplus to sell to the national grid.¶ “Investment must be made in technological changes to make the electricity generating industry more efficient,” said Torres. “The problem does not lie in the number of mills that are¶ working, but in the quality of the mills.”¶ “Sugarcane biomass could be the start of the road towards sustainable energy production for our country,” he added.¶ The expert said there are plans to increase sugarcane production, but argued that researchers “must begin studying the best way to deal with the problems posed by climate change,¶ which has a major impact on agriculture.”¶ This year, unseasonal rains hindered the sugar harvest, which ended in mid-May with an output no higher than last year’s poor showing: 1.2 million tons, according to preliminary¶ estimates.¶ The cost per kilowatt of burning biomass is four times lower than that of burning fossil fuels. In addition, biomass is a cleaner source of energy that does not release into the¶ environment heavy metals and other toxic substances.

#### Cuban sugar industry failing from a lack of investment, the land is fertile but not being used due to a lack of technology

Gayoso 7’ Antonio Gayoso is an agricultural economist with long experience in foreign assistance programs and microfinance. He is currently an adjunct professor of development policy and practice, and of microfinance, at the Elliott School of International Affairs, George Washington University. Mr. Gayoso is past president of the Association for the Study of the Cuban Economy and past chair of the Board of the World Hunger Education Service. “Cuba in Transition: Food vs. Fuel: A False Dilemma For Cuba” 2007, DA: 7/1/2013, ASCE- the Association for the study of the Cuban economy, http://www.ascecuba.org/publications/proceedings/volume17/pdfs/gayoso.pdf

Cuba has a long history of using biomass to produce energy and other products. In addition to sugar, the sugar cane industry has produced ethanol for fuel as well as molasses for cattle feed, and rum. Sugar cane bagasse, the residue from the cane harvest, was traditionally used to run the sugar mill boilers, either by itself or by mixing it with bunker oil. This practice continues to this day. Bagasse was also used, during the decade of the 1950s, to produce newsprint and compressed boards. During the same decade, ethanol, mixed with gasoline at a 10/90 ratio, was sold as vehicular fuel. At the time, it was called the “national fuel.” No data is available regarding what share of consumption this fuel accounted for. During the last 15 years, sugar production in Cuba has decreased precipitously. In 1959, Cuba was the world’s largest exporter of sugar and literally dominated the international market, with total exports of sugar surpassing 5 million tons per annum. In contrast, the 2007 sugar harvest, at about one million tons, was the lowest in more than 100 years, sufficient only to cover local (rationed) consumption of roughly 700 thousand tons and not quite enough to fulfill export contracts with China. After the 2002 government decision to restructure the sugar industry, the number of sugar mills decreased drastically. Only 42 mills participated in the 2007 harvest. More than half of the 161 mills active in the 1980s have been either dismantled or literally abandoned to rust. More than 200,000 workers have been released by the industry. In 2005, the government announced new investments to reactivate the sugar sector in order to take advantage of higher sugar prices. That effort, if it was carried out, seems to have produced nothing. Agricultural yields have also decreased radically. Cuban fields now yield less than 30 tons of sugar cane per hectare compared with a world average of 63 tons per hectare. Concerning production of sugar, the Cuban government has reported that, in 2006, industrial yields averaged less than 11%, compared with the average 12.83% reached during the decade of the 1950s.

#### Cuban ethanol imports help US strategic interests, politically strengthen the US in the region and Obama is interested; They only need investment

Felson 9’ COHA (Center of Hemispheric Affairs: nonprofit) RESEARCH ASSOCIATE DAVID ROSENBLUM FELSON, “Can Fading Caribbean Island-States Thrive in the World of Alternative Energy?” MARCH 25, 2009 [www.coha.org/can-fading-caribbean-island-states-thrive-in-the-world-of-alternative-energy/](http://www.coha.org/can-fading-caribbean-island-states-thrive-in-the-world-of-alternative-energy/), DA:7/1/2013

On March 14, President Lula became the first Latin America leader to meet with President Obama. In addition to discussing U.S. policy towards Venezuela and Cuba, and the global economic crisis, the two heads of state also pledged to strengthen biofuel trade links between the world’s foremost ethanol producing nations. Historically,¶ ethanol trade relations between the two countries have been strained as a consequence of the tariff. “It’s not going to change overnight, but I do think that as we continue bold exchanges of ideas, commerce and trade around the issue of biodiesel that, over time, this source of tensions can get resolved,” asserted Obama.

In addition to increasing trade, this intra-hemispheric relationship would ostensibly have a significant political impact on the region. IDB president, Luis Alberto Moreno maintains that, “By serving as a catalyst for rural development and a new source of trade with its hemispheric neighbors, ethanol imports will actually advance U.S. strategic interests—something that cannot be said of oil imports from the Middle East,” It remains to be¶ seen, however, if the Caribbean nations will be included in these developments. In spite of the advantage of tariff free¶ trade through the CBI, the immature and small-scale Caribbean ethanol programs have yet to establish large-scale trade relations with hungry U.S. and European markets. Even with the existence of Brazil’s pioneering¶ program, only 10 percent of all ethanol produced worldwide is traded internationally.

Potential Hurdles for an Incoming Tide¶ According to Arnaldo Vierra de Carvalho, an IDB sustainable energy specialist, “Central America and the Caribbean are well experienced in sugar production, so they know exactly what sugar cane means in terms of its business and technical aspects. What’s really new for them is producing ethanol and doing it in a competitive environment.” Indeed, the Caribbean has an extensive history with sugar cane, but it has only flirted with ethanol.¶ If, in fact, their still very youthful programs were to expand the production and export of ethanol, several obstacles¶ would stand in their way – especially in the near future.

#### Investment key to bio-fuel development

**Perales 09**, José R. executive director of the Association of American Chambers of Commerce in Latin America (AACCLA)."Cuba and Its Neighbors: The Challenges of Change." Creating Community. WOODROW WILSON CENTER UPDATE ON THE AMERICAS, Mar. 2009. Web. <http://www.wilsoncenter.org/sites/default/files/Cuba%20and%20its%20neighbors%20publication%20final.pdf>.¶ MA

David E. Lewis, vice-president of ¶ Manchester Trade, LTD, discussed the scenario for biofuels and alternative energies in ¶ the Caribbean and Cuba. The Caribbean has ¶ been selling ethanol to the United States under ¶ provisions of the U.S. Caribbean Basin Initiative ¶ (CBI) dating from the early 1980s. While the ¶ region forms part of an ethanol production chain ¶ originating in Brazil, demand for the product in ¶ the United States and elsewhere has led to concerns about scale. Investment in ethanol production in the Caribbean has been comparatively ¶ low, according to Lewis, and as a consequence ¶ the region suffers from limited infrastructure ¶ and productive capacity that hinder the region’s ¶ full potential for ethanol production. Despite ¶ this limitation CBI producers exported close to ¶ 300 million gallons of ethanol duty-free into the ¶ United States for 2008, and with an expected ¶ annual growth rate of 20 percent. ¶ Lewis argued that Cuba possesses the capacity to produce biofuels such as sugar-based ethanol; even though there have been some advances ¶ in that regard, obstacles to foreign investment ¶ have hindered the development of the industry. ¶ The island also shows important promise in the ¶ hydrocarbon sector, where recent discoveries of ¶ offshore oil reserves in Cuban waters of the Gulf ¶ of Mexico have attracted much interest from a ¶ variety of potential investors. As in the case of ¶ ethanol, Lewis argued that much of this development will depend on major investments, the ¶ application of advanced technologies, and the ¶ potential partnerships that can be developed with ¶ foreign firms

#### Foreign investment key—modernizes industries

**COHA 09**, based non-governmental organization (NGO) Encourages the formulation of rational and constructive U.S. policies towards Latin America. Cuba's Sugarcane Ethanol Potential: Cuba, Raul Castro, and the Return of King Sugar to the Island." Council on Hemispheric Affairs. N.p., 29 Oct. 2009. Web. 02 July 2013. <http://www.coha.org/cubas-sugarcane-ethanol-potential/>.¶.MA

¶ Cuba’s sugar industry has suffered from long-term neglect and insufficient investment, and its productive role has been utilized more as a vehicle for short term profit than as an engine for long term economic growth. From 1959 to 1999, only six new sugarcane mills with the capacity to cogenerate electricity were built despite guaranteed financial backing from the Soviet Union for part of that time. Also at Havana’s disposal were several advanced sugarcane research institutions, such as the Institute for Sugar Investigation (ICINAZ) and the Cuban Research Institute of Sugarcane Derivates (ICIDCA). Gradual decapitalization, disrepair, and low morale, all a result of a largely insufficient investment and a lack of spare parts, brought about the infrastructural deterioration that led Castro to close the majority of the nation’s mills in 2002.¶ It must be noted that Cuba’s ethanol and sugar production capacity will increase exponentially if direct foreign investment, which has been seen only sparingly up to now, is encouraged to enter by direct government policy. Starved by a recurrent shortage of hard currency, new capital inputs needed to modernize Cuban sugar mills would have to come from abroad. To rectify this current shortage, Walfrido Alonso-Pippo, who has been a member of the University of Havana, suggests an investment strategy similar to that used to fuel a Cuban natural gas power plant. He maintains that this “joint venture agreement for a recently constructed natural gas power plant could serve as a model for modernization of [Cuba’s] sugar bioenergy infrastructure. Under this existing arrangement, the foreign partner owns a third of the plant’s output, participates in its management, and receives a proportion of the plant’s profits.” Dr. Alonso-Pippo goes on to note that legal, institutional and political barriers to investment in Cuba have tended to remain a major obstacle, though recent heavy foreign investments in Brazil’s sugar ethanol production facilities suggest the feasibility of similar investments in Cuba.¶ Another scenario under which Cuba could accelerate investment was offered by Stanford economist Paul Romer who has suggested starting a free trade zone in Guantanamo Bay in the southeastern part of Cuba, where the U.S. currently administers an area roughly twice the size of Manhattan. Comparable to the Chinese model of Communist rule and the design of free trade zones in the communist east, such a zone in Cuba’s eastern region, where the majority of the island’s sugarcane is grown, might be a catalyst for modernization, trade opportunities, investment, and integration. Under either Dr. Alonso-Pippo or Dr. Romer’s plans, Cuba would be a strong contender to receive the foreign investment necessary for a thriving economy without the political ramifications of foreign ownership and ideological clashes.¶ When asked about sugarcane ethanol, an official posted to the Cuban Interests Section in Washington D.C., who preferred to remain anonymous, observed, “I don’t believe it would be good for us. Brazil has much more land. If anything, we would produce for our internal market and maybe with old partners like China.” However, in order for ethanol to be traded as a global commodity in the international market, a variety of producers and products must be developed globally. Brazil, rather than discouraging competition, has been looking for regional partners to create a Latin American market for sugarcane ethanol, offering technology sharing and market partnerships to several other countries in the region. Instead of avoiding competition, other Latin American nations could look without apprehension to Brazil as a likely benign partner rather than as a hegemonic regional competitor.

**Sugarcane production sustainable- investment needed   
King 12**, M. Dawn. Ph.D. in Environmental Politics at Colorado State University and worked as a policy analyst for the U.S. Geological Survey – conducting research on environmental decision-making models. "Cuban Sustainability: The Effects of Economic Isolation on Agriculture and Energy." Department of Political Science and Environmental Studies Lehigh University, 21 Mar. 2012. Web. <http://wpsa.research.pdx.edu/meet/2012/kingmdawn.pdf>.¶.MA

In the early 2000s, the Castro government shut down half of the countries’ 156 sugar ¶ mills due to deteriorating infrastructure (Elledge 2009). A lack of national capital has led to ¶ many infrastructure problems throughout Cuba, but the disappearance of the sugar industry, once ¶ the cause of Cuba’s depleted soil conditions and lack of diverse food production, may lead to¶ even more economic vulnerability for the country. Most of Cuba’s electric cogeneration is ¶ coupled with sugar production. A decrease in sugar production equates to a heavier reliance on ¶ fossil fuels, something Cuba does not want and cannot afford. With global sugar prices on the ¶ rise, partially due to an increase in world demand for sugarcane ethanol, Cuba can use what it ¶ learned in the “special period” to produce more sustainable sugarcane. Nicholas Elledge (2009) ¶ from the Council on Hemispheric Affairs, argues that by “using state of the art technology, a ¶ sugar mill can generate over 10 times the electricity needed for its own operation…roughly ¶ equivalent to adding 4 power plants to the island” and that “an action as simple as modernizing ¶ the existing mills would… represent more than a 50% increase…to the system’s power ¶ capacity.” Given Cuba’s dire need for capital and the fact that food production has decreased ¶ over the past decade anyway, one means to achieving Cuba’s goal of self-sufficiency could be ¶ increasing sugar production. This, of course, requires opening the market up to partial outside ¶ investment – an institutional change that may also aid in increasing total food production.¶ Cuba still imports 60% of its food (Robles 2010, 5), and many argue that the centralized ¶ economic system must be further decentralized since farmers are desperate to be free of ¶ government control. Armando Nova González (2006), a Cuban agricultural economist, argues ¶ UBPCs should be granted more autonomy since they are obligated to sell 70% of their produce ¶ to the state for below market prices, making the larger rural cooperatives inefficient and ¶ unprofitable. The most efficient agricultural practices in Cuba are those that are guided by a ¶ strong central government but also have autonomy and economic incentive to produce as much ¶ as possible, such as the parceleros operating small urban agricultural (UA) plots. Smaller plots ¶ within cities, as mentioned above, have usufruct rights

to the land and often produce food for ¶ their own consumption. Given the average Cuban spends around 75% of their income on food ¶ (Nova González 2006), this makes UA gardens economically viable because gardeners now ¶ produce food they otherwise would have to buy and some make a little extra money in markets ¶ without being forced to supply government produce for below market cost (Enríquez 2003, 211; ¶ Buchmann 2009). However, even larger cooperatives within urban settings that are required to ¶ sell to the government, particularly Havana, are more productive and environmentally friendly ¶ than their rural counterparts.

#### **Foreign investment key- modernization of plants**

**Elledge 09**, Nicholas. Sustainable Economic Development Fellow at McKinsey & Company. "The Cutting Edge." The Cutting Edge News. Council on Hemispheric Affairs, 2 Nov. 2009. Web. 03 July 2013. <http://www.thecuttingedgenews.com/index.php?article=11745>.¶ MA

Cuba’s sugar industry has suffered from long-term neglect and insufficient investment, and its productive role has been utilized more as a vehicle for short term profit than as an engine for long term economic growth. From 1959 to 1999, only six new sugarcane mills with the capacity to cogenerate electricity were built despite guaranteed financial backing from the Soviet Union for part of that time. Also at Havana’s disposal were several advanced sugarcane research institutions, such as the Institute for Sugar Investigation (ICINAZ) and the Cuban Research Institute of Sugarcane Derivates (ICIDCA). Gradual decapitalization, disrepair, and low morale, all a result of a largely insufficient investment and a lack of spare parts, brought about the infrastructural deterioration that led Castro to close the majority of the nation’s mills in 2002.¶ It must be noted that Cuba’s ethanol and sugar production capacity will increase exponentially if direct foreign investment, which has been seen only sparingly up to now, is encouraged to enter by direct government policy. Starved by a recurrent shortage of hard currency, new capital inputs needed to modernize Cuban sugar mills would have to come from abroad. To rectify this current shortage, the University of Havana’s Walfrido Alonso-Pippo suggests an investment strategy similar to that used to fuel a Cuban natural gas power plant.¶ He maintains that this “joint venture agreement for a recently constructed natural gas power plant could serve as a model for modernization of [Cuba’s] sugar bioenergy infrastructure. Under this existing arrangement, the foreign partner owns a third of the plant’s output, participates in its management, and receives a proportion of the plant’s profits.” Dr. Alonso-Pippo goes on to note that legal, institutional and political barriers to investment in Cuba have tended to remain a major obstacle, though recent heavy foreign investments in Brazil’s sugar ethanol production facilities suggest the feasibility of similar investments in Cuba.

#### Restrictions from embargo delay foreign investment in Cuban biomass

IWRP 12[Institute for War & Peace Reporting, News agency that voice to people at the frontlines of conflict, crisis and change, [Alejandro Tur Valladares](http://iwpr.net/people/alejandroturvalladares), “Foreign Money for Cuban Sugar Industry,” <http://iwpr.net/report-news/foreign-money-cuban-sugar-industry>, December 13, 2012]

Two foreign-funded projects designed to revive sugar production in Cuba are the first investments of their kind in half a century, and come at a time when this once-powerful industry is at a low ebb.¶ The weekly newspaper 5 de Septiembre reports that the Brazilian group Odebrecht and British-based Havana Energy Ltd. signed investment deals with the state sugar enterprise Azcuba during last month’s Havana Fair.¶ In a 60 million US dollar deal, Odebrecht will run the 5 de Septiembre sugar mill in Cienfuegos province. The firm is already working in Cuba, on a project to modernise the Mariel Port.¶ Havana Energy’s investment focuses not on so much on sugar as on the by-products. It will build Cuba’s first ever power station fuelled by sugar cane biomass, using waste materials from the Ciro Redondo sugar mill in Ciego de Ávila province.¶ Francisco Blanco Sanabria, an independent journalist in Cuba, says the agreements come at a time when the sugar industry is in crisis.¶ Production in the 2011-12 season stood at a mere 1.5 tons, a massive fall on the peak of 8.2 million tons achieved in the 1980s.¶ The decline dates to the early 1990s when the main market for Cuban sugar – the Soviet Union - collapsed. The industry was so reliant on guaranteed sales to its ally that it never tried to look at alternatives or at diversification into areas like ethanol production.¶ Economist Oscar Espinosa Chepe says that the government restructuring programs that followed amounted to dismantling mills and halving the area of sugar cane cultivation. In 1990 there were 156 factories; just over 40 of them survive.¶ One of them is the 5 de Septiembre plant, due to be taken over by Odebrecht. It will resume production as the December harvest comes in, now under foreign management.¶ At the Havana Fair, officials blamed the delay in securing foreign investment on the United States trade embargo.¶ In place since 1960, the embargo penalises foreign companies that buy or operate businesses confiscated from American citizens in the years after the Cuban Revolution. The dozens of sugar refineries built by the Cuban state between 1970 and 1990 are not subject to these restrictions.

#### Investment solves

**COHA 09** COHA is dedicated to monitoring Latin American affairs, especially within the context of [United States](http://en.wikipedia.org/wiki/Foreign_policy_of_the_United_States) and [Canadian foreign policy](http://en.wikipedia.org/wiki/Canadian_foreign_policy) and its effect on the region. Working with a large number of unpaid research associates (undergraduate and graduate interns) and a small core of professional research fellows to improve hemispheric relations and advance the public good. Cohistas, as COHA staff is sometimes known, constantly analyze a number of ongoing themes including social justice, equal rights, anti-corruption measures, and the enhancement of democratic rights. COHA's staff spends a great deal of time gathering information to write and publish research memoranda that may later be published around the world by the international media. COHA also produces its bi-weekly publication, the Washington Report on the Hemisphere, which is circulated globally to various universities and organizations such as the [Organization of American States](http://en.wikipedia.org/wiki/Organization_of_American_States)(OAS). It has been acknowledged and praised by members of the U.S. Congress[[citation needed](http://en.wikipedia.org/wiki/Wikipedia:Citation_needed" \o "Wikipedia:Citation needed)], other media sources who rely on COHA for news regarding the [Western Hemisphere](http://en.wikipedia.org/wiki/Western_Hemisphere), scholars, and individuals of various backgrounds who have an interest in the region.Cuba's Sugarcane Ethanol Potential: Cuba, Raul Castro, and the Return of King Sugar to the Island." Council on Hemispheric Affairs. <http://www.coha.org/cubas-sugarcane-ethanol-potential/> N.p., 29 Oct. 2009. Web. 03 July 2013.PL

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#### Investment revives sugar industry – key to economy

**CHA 09** COHA is dedicated to monitoring Latin American affairs, especially within the context of [United States](http://en.wikipedia.org/wiki/Foreign_policy_of_the_United_States) and [Canadian foreign policy](http://en.wikipedia.org/wiki/Canadian_foreign_policy) and its effect on the region. Working with a large number of unpaid research associates (undergraduate and graduate interns) and a small core of professional research fellows to improve hemispheric relations and advance the public good. Cohistas, as COHA staff is sometimes known, constantly analyze a number of ongoing themes including social justice, equal rights, anti-corruption measures, and the enhancement of democratic rights. COHA's staff spends a great deal of time gathering information to write and publish research memoranda that may later be published around the world by the international media. COHA also produces its bi-weekly publication, the Washington Report on the Hemisphere, which is circulated globally to various universities and organizations such as the [Organization of American States](http://en.wikipedia.org/wiki/Organization_of_American_States)(OAS). It has been acknowledged and praised by members of the U.S. Congress other media sources who rely on COHA for news regarding the [Western Hemisphere](http://en.wikipedia.org/wiki/Western_Hemisphere), scholars, and individuals of various backgrounds who have an interest in the region."Cuba's Sugarcane Ethanol Potential: Cuba, Raul Castro, and the Return of King Sugar to the Island." Council on Hemispheric Affairs. N.p., 29 Oct. 2009. Web. 03 July 2013. <http://www.coha.org/cubas-sugarcane-ethanol-potential/>.PL

Despite its clear deterioration in recent years, a revived Cuban sugar industry could serve an important role in the immediate future by attracting a new tranche of foreign investment while bolstering the country’s failing economy through the production of raw sugar, which would be processed into renewable fuel as well as cogenerate electricity. In fact, Cuba has produced ethanol in the past; when imported oil supplies were drastically curbed during the WWII conflict, Cuba produced roughly 26 million gallons of anhydrous ethanol to blend with gasoline. This practice, however, was discontinued after the war in order to meet U.S. raw sugar import quotas. Today, Juan Tomás Sanchez of the Association for the Study of the Cuban Economy estimates that Cuba eventually could supply up to 3.2 billion gallons of ethanol annually. A more modest prediction by Cuba expert Jorge Hernandez Fonseca projects a production figure around 2 billion gallons per year, which would still make the island the third largest sugar producer in the world, behind the U.S. and Brazil. Regardless, Rivera Ortiz, director of the Cuban business society ZERUS, told business magazine Opciones in 2006 that, “any efforts by foreign and Cuban entrepreneurs to jointly produce ethanol in Cuba must first look at guaranteeing financial and technological resources needed to boost sugarcane production as the necessary raw material for the advancement of ethanol projects.

#### Government investment is key – poor management hampers industry growth

**Rosenblum 09** COHA is dedicated to monitoring Latin American affairs, especially within the context of [United States](http://en.wikipedia.org/wiki/Foreign_policy_of_the_United_States) and [Canadian foreign policy](http://en.wikipedia.org/wiki/Canadian_foreign_policy) and its effect on the region. Working with a large number of unpaid research associates (undergraduate and graduate interns) and a small core of professional research fellows to improve hemispheric relations and advance the public good. Cohistas, as COHA staff is sometimes known, constantly analyze a number of ongoing themes including social justice, equal rights, anti-corruption measures, and the enhancement of democratic rights. COHA's staff spends a great deal of time gathering information to write and publish research memoranda that may later be published around the world by the international media. COHA also produces its bi-weekly publication, the Washington Report on the Hemisphere, which is circulated globally to various universities and organizations such as the [Organization of American States](http://en.wikipedia.org/wiki/Organization_of_American_States)(OAS). It has been acknowledged and praised by members of the U.S. Congress[[citation needed](http://en.wikipedia.org/wiki/Wikipedia:Citation_needed" \o "Wikipedia:Citation needed)], other media sources who rely on COHA for news regarding the [Western Hemisphere](http://en.wikipedia.org/wiki/Western_Hemisphere), scholars, and individuals of various backgrounds who have an interest in the region.Can Fading Caribbean Island-States Thrive in the World of Alternative Energy?" Council on Hemispheric Affairs. N.p., 25 Mar. 2009. Web. 02 July 2013. <http://www.coha.org/can-fading-caribbean-island-states-thrive-in-the-world-of-alternative-energy/> PL

While Cuba has never pursued a large-scale ethanol fuel program, it was once the largest exporter of sugar in the world, producing 8 million metric tons of raw sugar in 1990. Namely as a result of poor management, it only yielded 1.2 million metric tons in 2007. In spite of the country’s vast arable land holdings as well as a need to revamp its sugar industry, Havana has disregarded production of ethanol primarily for two reasons. First, Fidel opposed using sugar cane as the base of fuel because of worries that it would adversely affect the nation’s food stocks. In addition, its protectionist policies would inhibit the essential foreign investments from financing the overhaul. However, at a 2006 international conference in Havana, sugar industry officials introduced measures to modernize 11 distilleries as well as add 7 new ones in an attempt to expand the industry. But alas, the reform has namely modernized sugar cane production with respect to alcohol and pharmaceuticals. Conrado Moreno of the Cuban Academy of Sciences stated that, “ethanol will not go towards the production of fuel.” The feasibility of a Cuban ethanol program lays in the hopes that Raul Castro may be more amenable than his older brother.¶ “The sugar cane industry and its associated cultural effects have been ingrained in many states here and makes it easy to revamp and expand such an industry,” Curtis Mohammed of Trinidad Bulk Traders Ltd has contended. “All that is needed is that the respective governments hand the baton over to private sector entities and provide the investment climate to make this a reality.” But as the recent failure of the Jamaican government to reach an agreement on the sale of its state-owned plantations to the Brazilian company Infinity Bio-Energy demonstrates, the ostensibly simple task suggested by Mohammed appears to be more difficult to fulfill in practice. “Our negotiating partners have not been able to secure the investor support that is required to deal with the obligations of this agreement,” lamented Jamaican Prime Minister Bruce Golding. The Jamaican debacle regrettably represents one of very few proactive attempts to revive what could come to be the region’s miracle crop.

#### Cost of biogasse production in Cuba is much less than Brazil

Larson et al 1’. [Eric D. Larson and Robert H. Williams , M. Regis L.V., Center for Energy & Environmental Studies, Princeton University, Princeton, NJ, USA and Leal Centro de Tecnologia Copersucar, CP 162, Piracicaba, SP -- Brazil -- 13400-970, “A review of biomass integrated-gasifier/gas¶ turbine combined cycle technology and its¶ application in sugarcane industries, with an¶ analysis for Cuba”, <http://ac.els-cdn.com/S0973082609600211/1-s2.0-S0973082609600211-main.pdf?_tid=5309257c-e39e-11e2-bb51-00000aab0f02&acdnat=1372828171_5bb20151b454e589fa161af7f386a073>]

If a trash recovery level similar to that achieved in Brazil (89 %) could be realized in Cuba, the total trash that¶ could be delivered to a cogeneration facility would be¶ some 174 kg0/tc on average. Such a level is still shy of¶ the level needed to operate the cogeneration systems described in Table 6, where the crushing season lasts only 150 days. The costs for recovering and delivering trash to a mill site in Cuba are likely to be considerably lower than the costs estimated in Table 7 for Brazil since some trash is¶ already concentrated at cleaning stations and since rail transport of trash to the mill site is feasible. Our ‘‘guesstimate’’ is that direct costs per t of trash delivered to a¶ mill can be reduced by 50 relative to the $ 10.9/t0¶ estimated for Brazil. Assuming the costs of agronomic¶ impacts are the same as in Brazil, the total cost of delivered bales in Cuba would then be $ 14.1/t0, or $¶ 0.83/GJHHV.¶ 5.2.3.

#### Investment in sugar cane biofuel is the best way to improve Cuba’s energy platform

Perez 12/20/12. [Ricardo Torres Perez, Assistant Professor at the Centro de Estudios de la Economía Cubana (CEEC) of Universidad de La Habana, “Cuba’s energy problem and oil in the Gulf of Mexico,” <http://www.cubastudygroup.org/index.cfm/files/serve?File_id=6f82a901-4825-4803-9b04-ad9bf45d4169>, December 20, 2012]

Regardless of the discovery of oil and its commercial exploitation, Cuba must devise a strategy to develop more rapidly its potential for energy production from renewable sources, safer and inexhaustible. ¶ Country conditions can combine different alternatives depending on ¶ their availability and the associated financial cost. Most experts agree that the sugarcane industry should represent a central part in these efforts, due to its high leverage and tradition of the nation in this activity. What would happen if a portion of the funds invested in the acquisition of distributed generation plants had been spent to rescue the sugar cane industry, modernizing and expanding generating boilers ethanol production? The process ¶ would take longer but surely we would have a stronger energy platform for the future. Not to mention the effects induced by the economic activity generated around the sector.¶ Another lesson of recent years is that the administrative constraints of energy consumption are not an effective response to the external currency constraint, or as a means to reduce dependence on fossil fuels. In ¶ many cases, the easiest solutions are not ideal. Given the level of economic development of the nation and ¶ its growth prospects in the long term, it is expected that energy consumption will tend to increase, especially ¶ private consumption. This development would be incompatible with a permanent containment of supply. We ¶ hope that oil will be found in the Gulf, but only if we are able to use it to promote lasting progress in ¶ the nation.

### **US Investment Key**

#### **U.S. investment key- cheap effective tech**

**Elledge 09**, Nicholas. >.¶ Sustainable Economic Development Fellow at McKinsey & Company.. "The Cutting Edge." The Cutting Edge News. Council on Hemispheric Affairs, 2 Nov. 2009. Web. 03 July 2013. <http://www.thecuttingedgenews.com/index.php?article=11745.MA

The Cuban government’s decision to disassemble most of Cuba’s aging sugarcane infrastructure stemmed from the belief that production of the commodity was no longer cost effective for Cuba. As Fidel Castro noted, “Why would we produce something that costs more to make than to import?” However, the inefficiencies that beleaguered the once-mammoth Cuban sugar industry are not systemic, but rather the result of fixable practices, obsolete infrastructure, and a lack of adequate investment. There is no reason why Cuba’s raw sugar and ethanol industry wouldn’t be profitable in a modernized market with successful technology sharing partnerships and the appropriate implementation of world-standard cultivation and refining techniques. In fact, such improvements do not even necessarily involve expensive new technologies. As Dr. Brian H. Pollitt, a Cuban sugar expert from the University of Glasgow’s Institute of Latin American Studies, noted: “It was evident both that there was still great room for productive improvement and that most of it lay not in adopting novel or sophisticated techniques of cultivation, but in generalizing the mundane good tillage practice that could be observed on many small cane farms and CPAs [Agricultural Production Cooperatives] throughout Cuba.”¶ Cuba’s ambitious push for a “Ten Million Ton Harvest” back in 1970 fell short of its goal but still resulted in an 8.5 million ton harvest. The government push to achieve such high production levels began a period of bad habits: inefficient seeding methods, inappropriate harvesting schedules, and faulty refining techniques. The milling season, for example, was extended 4-5 months into the rainy season, causing a predictable decrease in yield and considerable damage to agricultural machinery. A loss of sucrose content found in the cane and a decline in sugar quality occurred due to protracted delivery schedules as well as stoppages at the mills. Additionally, considerable mechanical problems during the following harvesting season were exacerbated by maintenance delays. By this time politically-driven Cuban officials set goals for sugarcane cultivation, regardless of the production cost, under the government slogan “Sugar to Grow,” institutionalizing such inefficiencies that have plagued the island’s sugar agroindustry.¶ However, Cuba’s largest problem arose later, following the economic upheavals caused by the termination of Soviet patronage. After the demise of the Soviet epoch in 1989, the average level of production of Cuban sugarcane fell from 57.5 tons/ha before 1990 to 22.4 tons/hectare in 2005. This plunge cannot be solely attributed to inclement meteorological conditions such as devastating hurricanes and tropical storms, as the Cuban government is wont to claim. The Dominican Republic experienced the same adverse weather conditions, yet it has increased its yield since 1999 to double that of Cuba’s today. Measures such as raising the sugarcane agricultural yield and standardizing efficient practices would be essential to bolstering Cuba’s sugarcane industry today. A sweeping mandate from the top is an incontrovertible requirement for Cuba to be able to open itself to any influx of investment, especially from the United States. Given Cuba’s pronounced and justifiable hostility against U.S. intervention, such an endeavor would prove a difficult task for Havana. However, both internal and external incentives exist to prompt Cuba to act with avidity to reassess and revamp its capital assets. Similar to China, Cuban quasi-visionaries believe that they stand to gain much by riding the currents of capitalism while still holding fast to the spirit of La Revolución.

#### **Cuba has land available, all they need is American Investment**

Felson 9’ COHA (Center of Hemispheric Affairs: nonprofit) RESEARCH ASSOCIATE DAVID ROSENBLUM FELSON, “Can Fading Caribbean Island-States Thrive in the World of Alternative Energy?” MARCH 25, 2009 [www.coha.org/can-fading-caribbean-island-states-thrive-in-the-world-of-alternative-energy/](http://www.coha.org/can-fading-caribbean-island-states-thrive-in-the-world-of-alternative-energy/), DA:7/1/2013

Another possible explanation for the Caribbean’s lack of investment in ethanol is the notion that many islands¶ would not be fit to supply the demand for global ethanol production. This is due to the comparatively small¶ amount of arable land on many of the islands. From this perspective, expanding sugar production may well lead¶ to a return to the colonial-era domination of the crop model, without the advantages of economy of scale.

On the other hand, many islands appear to have the capacity to support a massive expansion of sugar cane production. For example, Cuba only uses 700 thousand hectares of its 6,655 thousand hectares of arable land.¶ Even some small islands appear to be able to accommodate vastly increased cultivation. Trinidad and Tobago¶ uses a mere 12 thousand hectares of its 122 thousand hectare total.

Perhaps the most imperative variable in ethanol development in the region is international investment. Despite¶ extensive research and development, a groundbreaking deal has yet to be brokered. The recent failure of Infinity Bio-Energy and the Jamaican government to strike an agreement on the country’s sugar factories illustrates a genuine effort to put adequate funds into Caribbean basin programs. Right after the fiasco, Kingston reopened its¶ search for potential buyers.

Although recent attempts have been largely fruitless, it appears that foreign investors remain interested in the¶ region–an integral part of the equation, given the Caribbean’s fundamental dependence on U.S. and European¶ funding. In January 2008, IDB’s Sustainable Energy and Climate Change Initiative (SECCI) approved a $750,000¶ donation for feasibility studies of biofuels in Haiti, El Salvador, and the Dominican Republic. The research, which¶ is being performed by Brazilian Getulio Vargas Foundation (FGV), exemplifies a concerted effort to develop the¶ region’s ethanol industry. Moreover, the Dominican Finance Minister, Vicente Bengoa, refers to an 84 percent rise¶ in FDI in 2008.

#### The U.S. should invest in Cuba’s sugarcane industry

Nicholas Elledge October 29, 2009

(Nicholas Elledge, research fellow at the Council on Hemispheric Affairs. “Cuba’s Sugarcane Ethanol Potential: Cuba, Raul Castro, and the Return of King Sugar to the Island” October 29, 2009. <http://www.coha.org/cubas-sugarcane-ethanol-potential/>)

Some argue that tourism, which in 2001 surpassed sugar as the leading gross hard currency earner in the Cuban economy, is an adequate substitute for the role that sugar once played. However, the tourism industry has proven altogether inadequate for that role. According to a study in 2006, the cost benefit ratio for tourism, as expressed in US dollars, is $0.78 to the dollar, while the comparative ratio for the sugar sector is nearly one-fifth the cost, with a ratio of $0.20 to the dollar. In addition, the formerly thriving sugar sector employed three times as many people as tourism does today. As well, sugarcane over the years has contributed significantly to research and technological development whereas tourism has done little in terms of new technology for the country’s economic and social development. A peaceful coexistence of tourism and sugarcane industries may be the best-case scenario for Cuba; however, claims that tourism unilaterally can be an adequate replacement for the sugarcane industry might be dangerously overblown.¶ As Washington looks to improve relations with the Caribbean nation, the bulk of the responsibility for the lobbying effort will likely fall on the shoulders of both sides of the Cuban population. This will hopefully encourage fair-trade and investment practices based on sugarcane-based ethanol while respecting Cuba’s national sovereignty. The case for U.S. involvement in sugarcane cultivation is straightforward: sugarcane ethanol is exponentially more energy efficient, cheaper, and cleaner than corn-based ethanol. The withholding of trade with Cuba based on the premise of “political prisoners” seems grossly opportunistic if not hypocritical as the U.S. engaged in over $66 billion in bilateral trade with Saudi Arabia last year. All told, the lure of ethanol may make this irresistible.¶ Concluding Considerations¶ The reliance on a single subsidized commodity produced for a single trading partner proved to be monumental mistake in pre- and post-revolutionary Cuba. Rather than implementing a program of rapid industrialization after the revolution in order to end Cuba’s long-standing economic dependence on sugar, sugar production was doubled and constituted both the symbolic and financial heart of the revolution. Yet, an equally ponderous modern error would most likely have been to abandon and neglect Cuba’s single most available resource: sugarcane. The political and economic stars may now be aligning for Havana to turn to lucrative sugar and ethanol production as a major part of a winning economic plan, and Raul Castro could be committing a major blunder by again failing to embrace the promising economic diversification plan staring him in the face

#### Plan solves- further development increases future relations

**Perales 10**, José R. executive director of the Association of American Chambers of Commerce in Latin America (AACCLA) "The United States and Cuba: Implications O." Update on the Americas. WOODROW WILSON CENTER LATIN AMERICAN PROGRAM, Aug. 2010. Web. <http://www.wilsoncenter.org/sites/default/files/LAP\_Cuba\_Implications.pdf>.¶ MA

In spite of these developments, Piñón argued it ¶ is in the best interests of both Cuba and the United ¶ States to begin energy collaboration today. What is ¶ needed, Piñón continued, is a bilateral policy that ¶ would contribute to Cuba’s energy independence ¶ as well as support a broader national energy policy ¶ that embraces modernization of infrastructure, the ¶ balancing of hydrocarbons with renewable materials, ¶ and conservation and environmental stewardship. ¶ He highlighted the case of the Deepwater Horizon ¶ disaster in the Gulf of Mexico, and what would ¶ happen if such an incident happened in a Cuban oil ¶ rig (under current U.S. policy banning equipment ¶ and technological sales to the island), as a reminder ¶ of the need for an energy dialogue between Cuba ¶ and the United States. Moreover, Piñón contended ¶ that if U.S. companies were allowed to contribute ¶ to developing Cuba’s hydrocarbon reserves, as ¶ well as renewable energy such as solar, wind, and ¶ sugarcane ethanol, it would reduce the influence ¶ of autocratic and corrupt governments on the ¶ island’s road toward self determination. Most ¶ importantly, it would provide the United States ¶ and other democratic countries with a better ¶ chance of working with Cuba’s future leaders to ¶ carry out reforms that would lead to a more open ¶ and representative society. American oil and oil ¶ equipment and service companies have the capital, ¶ technology, and operational know-how to explore, ¶ produce, and refine in a safe and responsible manner ¶ Cuba’s potential oil and natural gas reserves.

#### **America is poised to greatly expand Cuba’s ethanol, it only needs action.**

Patiño 9’

Christian Santiago Patiño was the 2009 winner of the ASCE student prize, “THE CUBAN SUGAR DILEMMA: THE PROSPECT FOR A GREEN FUTURE”, ASCE (Association for the Study of the Cuban Economy) 2009, www.ascecuba.org/publications/proceedings/volume19/pdfs/patino.pdf

This work demonstrated that Cuba has the potential¶ to become an important ethanol producer. Not only does the island enjoy of the appropriate conditions for sugarcane cultivation, but a prospective ethanol sector will also benefit from an experienced and readily available labor force and a developing transportation network. Also, although the productivity of Cuban sugarcane fields was severely disrupted after the 2005¶ hurricane season, field productivity is expected to significantly improve to an internationally competitive¶ level thanks to better harvesting techniques and to the¶ recent adoption of rice-sugarcane rotation. As the¶ world increases its demand for low-priced ethanol,¶ Cuba’s low field production costs and the cost efficiency associated with sugarcane based ethanol will¶ further favor the development of a Cuban ethanol sector.¶ If Cuba becomes an important ethanol supplier, its location will place it in a particularly advantageous position given that Cuba lies closer to the United States¶ and to Europe than most of its future competitors.¶ Cuba already has preferential access to the ethanolthirsty European market and there is a realistic possibility that before too long the United States will normalizes its trade relations with the Caribbean island.¶ Everything indicates that Cuba can become an important ethanol producer, now it is necessary that the knowledge of science, engineering, finance, and marketing are brought together to support the development of Cuba’s prospective ethanol sector.

In 2005, the United States announced that in the¶ next ten years it will substitute 20 percent of its¶ petroleum fuel consumption with ethanol. In order to attain this objective, ethanol imports are expected to grow by 2017 from their original level of¶ 713 million gallons to 3.9 billion gallons. If relations between the United States and Cuba normalize, considering Cuba’s proximity to the United States, Cuba will have a significant advantage in delivering ethanol to the United States. Because of the size of its ethanol market and its proximity to Cuba, the United States will play a considerable role in the development of Cuba’s prospective ethanol industry. Possible tax exemptions could particularly give Cuba a huge advantage against the better established Brazilian ethanol industries, shipping their product from more than 6,000 kilometers away.

### Economy

#### Biomass good for economy

American Renewables 07. "Economic, Environmental and Climate Change Benefits of Biomass Energy - American Renewables - Biomass Power Plant.". N.p., Jan. 2007. Web. 02 July 2013. American Renewables develops, builds and operates clean energy facilities that utilize waste wood materials as fuel. These power facilities are not only environmentally friendly, but also are cost-effective and reliable and bring a new source of electricity to U.S. communities, eliminating dependence on imported fossil fuels. . <http://www.amrenewables.com/biomass-energy/biomass-energy-benefits.php> PL  
Biomass energy plants make a substantial, positive impact on local and regional economies by generating well-paying jobs in:¶ construction and operation of the plant and¶ collection and transportation of biomass material.¶ Biomass energy plants support local industry and businesses and encourage new investment in rural communities.¶ Biomass energy facilities can help stabilize the local timber and forestry industry by providing stable demand for biomass material, which allows loggers, harvesters, processors and transporters to make capital investments.¶ Biomass facilities also increase the local tax base without requiring substantial services from the local community.¶ Unlike many other energy fuels, the dollars spent on biomass material stay in the local, state and regional economies since biomass plants primarily use fuel sources that are within 75 miles of the plant.¶ During peak construction, a 100-MW biomass power facility will create approximately 400 construction jobs. Once operational, the facility will create approximately 40 direct full-time positions at the site, and will also generate approximately 700 indirect jobs throughout the region.

#### Cuban biomass sustains the rural economy

UNDP 2005[United Nations Development Programme, UNDP is a ¶ solutions-oriented, knowledge-based development organization that supports countries in ¶ reaching their own development objectives and internationally agreed-upon goals, “Co-generation of Electricity and Steam Using Sugarcane Bagasse and Trash”, http://www.thegef.org/gef/sites/thegef.org/files/gef\_prj\_docs/GEFProjectDocuments/Climate%20Change/Cuba%20Cogeneration%20of%20Elect%20and%20Stream/Project%20Document%20for%20WP.doc]

At the local level, the improved economic performance of the sugar industry will help to sustain the rural economy, preserving existing jobs that are currently under threat as a result of low sugar prices as well as creating new employment opportunities in power station operation and trash handling. The production of biomass for energy generation could become an end in itself for the cultivation of sugar cane, with the potential for diversification into other energy crops. A further benefit at the local level will arise from the cleaner atmospheric emissions of modern biomass power plants relative to oil burning plants.

# Cuba Ethanol Neg

## Counterplans

#### Other countries already have contracts for Cuban ethanol

Alejandro Tur Valladares 13 Dec 12 ( Alejandro Tur Valladares is an independent journalist in Cuba, “Foreign Money for Cuban Sugar Industry,” IWPR, http://iwpr.net/report-news/foreign-money-cuban-sugar-industry)

Two foreign-funded projects designed to revive sugar production in Cuba are the first investments of their kind in half a century, and come at a time when this once-powerful industry is at a low ebb.¶ The weekly newspaper 5 de Septiembre reports that the Brazilian group Odebrecht and British-based Havana Energy Ltd. signed investment deals with the state sugar enterprise Azcuba during last month’s Havana Fair.¶ In a 60 million US dollar deal, Odebrecht will run the 5 de Septiembre sugar mill in Cienfuegos province. The firm is already working in Cuba, on a project to modernise the Mariel Port.¶ Havana Energy’s investment focuses not on so much on sugar as on the by-products. It will build Cuba’s first ever power station fuelled by sugar cane biomass, using waste materials from the Ciro Redondo sugar mill in Ciego de Ávila province.

### Brazil Solvency

#### Brazil set to engage in Cuban sugar production

Israel 12

(Esteban Israel, Jan 30, 2012, “Brazil to breathe life into faded Cuban sugar sector”, http://www.reuters.com/article/2012/01/30/brazil-cuba-sugar-idAFL2E8CUA7620120130)

Brazilian builder Odebrecht plans to produce sugar in Cuba, the company said on Monday, as looser restrictions on foreign¶ investment in the communist island raise hopes of a recovery in¶ the once-booming sector after decades of decline. ¶ Odebrecht would also produce ethanol from sugarcane as well¶ as electricity from the biomass that is left over when the cane¶ is crushed, according to the Brazilian sugar industry executive¶ who is familiar with the details of the project. ¶ "Cuba is opening up the possibility of producing ethanol¶ through energy generation and Odebrecht will build a distillery¶ there," the executive said, adding the project is similar to one¶ Odebrecht is developing in Angola. ¶ That is a $258 million undertaking in partnership with¶ Angola's Sonagol oil company to produce 260,000 tonnes of sugar,¶ 30 million liters of ethanol and 45 megawatts of electricity. ¶ Large-scale ethanol production in Cuba has come up against¶ opposition from former president Castro, a fierce critic of the¶ use of edible crops as fuel. ¶ Some experts believe that with sufficient investment, Cuba¶ has the potential to become the world's No. 3 biofuel producer¶ after the United States and Brazil. ¶ Ron Soligo, economist at Rice University in Houston, Texas,¶ and an expert on the Cuban sugar industry, calculates that the¶ island could achieve ethanol output of 7.5 billion liters per¶ year. Brazil, by comparison, produces roughly 20 billion liters. ¶ "But developing the ethanol sector in Cuba will take time,¶ since most of the (cane-growing) land was abandoned for years,"¶ he said. ¶ Brazil, the world's No. 2 ethanol producer, has offered¶ technical assistance to Cuba to produce the biofuel from cane. ¶ "The subject is on the table. There are investments planned¶ in sugar and there exists a possibility that at some time this¶ will be taken on board by the ethanol industry," a source at¶ Brazil's foreign ministry told Reuters.

#### Two other countries already set to invest in Cuban sugar

Valladares 12

(Alejandro Tur Valladares, Dec 13, 2012, “Plans to revive processing and use waste to make biomass fuel”, http://iwpr.net/report-news/foreign-money-cuban-sugar-industry)

Two foreign-funded projects designed to revive sugar production in Cuba are the first investments of their kind in half a century, and come at a time when this once-powerful industry is at a low ebb.¶ The weekly newspaper 5 de Septiembre reports that the Brazilian group Odebrecht and British-based Havana Energy Ltd. signed investment deals with the state sugar enterprise Azcuba during last month’s Havana Fair.¶ In a 60 million US dollar deal, Odebrecht will run the 5 de Septiembre sugar mill in Cienfuegos province. The firm is already working in Cuba, on a project to modernise the Mariel Port.¶ Havana Energy’s investment focuses not on so much on sugar as on the by-products. It will build Cuba’s first ever power station fuelled by sugar cane biomass, using waste materials from the Ciro Redondo sugar mill in Ciego de Ávila province.

## Sugar Ethanol Shift

#### Cuban sugar ethanol will not hurt the U.S. corn industry

(Jonathan Specht- Washington University in St Louis, 2012, “Raising Cane: Sugar Sugarcane Ethanol’s Economic and Environmental Effects on the United States”, http://works.bepress.com/jonathan\_specht/1)

Whether or not policy and law changes successfully encouraging the growth of a Cuban sugarcane ethanol industry would, in fact, severely damage the domestic ethanol industry and the Midwestern economy would depend on a number of factors. Perhaps the most important of these factors is whether the Renewable Fuels Standard of the Energy Independence and Security Act of 2007 remains in place or is repealed by a future act of Congress. In the words of a 2008 USDA report, the Renewable Fuels Standard “will serve as a floor for the future trajectory of renewable fuels consumption, including ethanol.” Thus, because it mandates that a certain percentage of U.S. fuel comes from corn-based ethanol, even if other forms of federal support are not revived the Renewable Fuels Standard will provide a source of U.S. demand for ethanol.

Additionally, while exposing the domestic ethanol industry to competition from imported ethanol might bring down corn prices, it would likely not be enough to make them low enough to bring a 1980s-style farm crisis to the Midwest. There are many sources of demand for corn in addition to ethanol. Contrary to popular perception, the majority of U.S. corn production does not become food for people – at least not directly. The largest percentage of the annual U.S. corn crop – between 48 and 59% in the mid years of the 2000s – goes to animal feed. In addition, about one fifth of the annual U.S. corn crop is exported. The remaining percentage of the crop is mostly processed in a number of ways. The products from corn processing include corn sweeteners (high fructose corn syrup), corn oil, corn starch, and biodegradable plastics.

Even if corn-based ethanol production were to decline, U.S. corn prices are likely to remain relatively high for the near-to-midterm future. This is mainly due to global rise of the middle class, a resource-intensive phenomenon that is especially pronounced in countries like India and China and is driving up prices for a large number of commodities. For example, if the Chinese economy continues to grow and more Chinese citizens move from rural areas to cities, join the middle class, and therefore start eating more pork, there will be upward pressure on demand for U.S. corn and therefore on U.S. corn prices. Thus, because of factors outside of the entire debate over importing ethanol from elsewhere in the Western Hemisphere (and indeed, outside anything in the Western Hemisphere) a reduction in demand for corn-based ethanol would not necessarily lead to low corn prices

## Solvency

#### Sugarcane ethanol production holds many environmental advantages but is U.S. land is unsuitable for cultivation making production economically unfeasible

Voegele ‘09

(Erin Voegele, February 04, 2009, “Sugarcane Economics”, http://www.ethanolproducer.com/articles/5345/sugarcane-economics)

Sugarcane has been grown in the U.S. for centuries even though land most suitable for its cultivation is scarce. Commercial production of the tropical grass is limited to select areas of Florida, Louisiana, Texas and Hawaii. Edward Richard, a research leader with the USDA Agricultural Research Service's Sugarcane Research Unit in Houma, La., says U.S. sugarcane production is limited to about 1 million acres nationwide. It's no wonder the U.S. ethanol industry relies on corn since farmers planted more than 85 million acres last year. ¶ Sugarcane efficiently turns sunlight and chemical inputs into energy and requires a minimal amount of fertilizer, compared with other ethanol feedstocks. "Your total input costs are less [with sugarcane] than with corn or some of the other crops that are used for ethanol production," Richard says. The energy balance is also greater. While corn generally produces about 1.5 units of energy for each unit of energy it consumes the energy balance of sugarcane is approximately eight to one, Legendre says. ¶ Even with all of these advantages, sugarcane ethanol projects have struggled to gain a foothold in the U.S. because the economics simply don't make sense in most areas. Using current technology, Legendre says it takes about 14 pounds of sugar to produce 1 gallon of ethanol. The price of U.S.-produced raw sugar currently hovers at about 20 cents per pound, and has remained stable for nearly two decades. With the current economics, ethanol producers in most areas simply wouldn't be able to afford it.

# Neg PTX

## Politics

### Sugar Lobby Link

#### The sugar lobby hates the plan and they’re powerful

Bastasch 2012

[Michael, Daily Caller, “Sugar lobby sweetens deal for House Republicans protecting subsidy”, 6/25, http://dailycaller.com/2012/06/25/sugar-lobby-sweetens-deal-for-house-republicans-protecting-subsidy/]

The sugar industry has spent tens of millions of dollars lobbying and donating to politicians to keep sugar tariffs and subsidies in place so that sugarcane and beet farmers and others in the production chain can enjoy artificially high profits and keep foreign competition out of the marketplace. In 2012 alone, the sugar industry spent nearly $2.5 million industry-wide on lobbying, according to the Center for Responsive Politics. On congressional elections this year, the industry has contributed $2.8 million in individual contributions and PAC funding. Data collected from the Center for Responsive Politics show that the 16 Republicans who voted against sugar reform have received nearly $850,000 in individual and PAC contributions form the sugar industry since 1990. The biggest recipients of sugar dollars among the sixteen were Georgia Rep. Saxby Chambliss and Kansas Sen. Pat Roberts, who received more than $150,000 and $122,000, respectively. Both voted to table the sugar reform amendment. Rubio and Thune have also received sizable donations from the sugar industry: $26,700 for Rubio and $45,150 for Thune. Big Sugar’s influence goes back decades. A Heritage Foundation analysis shows that sugar industry PACs contributed more than all other U.S. crop PACs combined, with a share of 55.1 percent of crop industry donations between 2002 and 2012. And sugar lobbying expenditures were 34.2 percent of all U.S. crop lobbying expenditures between 2002 and 2011. One group alone, the American Sugar Alliance (ASA), has spent $400,000 lobbying so far in 2012. The lobbyists ASA hired had connections within Congress and the Department of Agriculture. One lobbyist hired by ASA, Tom Sell, served on the House Committee on Agriculture and was influential in crafting of the farm bill in 2002, and he worked at the Department of Agriculture from 2001 to 2004, serving as Director of Intergovernmental Affairs from 2003 to 2004. Another lobbyist, Jeff Harrison, was counsel to the House Committee on Agriculture.

#### Sugar lobby hates the plan – want restrictions on imports

Spencer 2012

[Jim, Star Tribune, “In Congress, no one beats the influential beet lobby”, http://www.startribune.com/politics/statelocal/138264909.html]

The U.S. sugar program -- a combination of loan programs, tariffs, quotas and other price supports -- almost guarantees American sugar producers can sell their entire yield at a profitable price. Tariffs, for example, require food makers to pay higher taxes for imported sugar, ensuring that the world's 40 major sugar-exporting countries can't sell as much in the United States as they would like. As a result, American consumers and companies generally pay more for sugar than they would in a more open market. The average wholesale price for a pound of refined sugar in the U.S. (36 cents) was almost double the average worldwide price (19 cents) from 2006 through 2010. Liam Killeen, CEO of Farley & Sathers, knows the cost of sugar subsidies all too well. Sugar is the largest expense for Farley & Sathers, one of the nation's largest makers of non-chocolate candy. The company, based in Round Lake, Minn., buys about 50 million pounds of U.S. sugar annually, which cost it roughly $28 million last year. "If we were free to purchase sugar on the market openly, I think we'd be purchasing it at about 60 percent of the price we're forced to [pay] in the U.S.," Killeen said. The federal government supports domestic sugar producers in other ways, too. The U.S. guarantees loans by allowing producers to borrow money from the government that can be repaid in sugar instead of cash, if the market crashes. Supporters of the U.S. sugar program say the outcome is predictable and positive -- stable prices for consumers. "You know the price of gas because it's volatile and high, you don't know the price of sugar because it's not volatile and high," said David Berg, CEO of American Crystal Sugar. "Unilateral disarmament" of sugar protections, as Berg put it, would lead to a "whipsaw" effect for consumers that won't guarantee lower sugar prices. Peterson agreed, noting that numerous countries protect their own sugar producers. "The world sugar market is distorted by government involvement in almost every country," he said. "It's not realistic to pretend there is a free market out there."

#### The sugar lobby is powerful

Spencer 2012

[Jim, Star Tribune, “In Congress, no one beats the influential beet lobby”, http://www.startribune.com/politics/statelocal/138264909.html]

American Crystal Sugar has become one of the country's most powerful lobbying groups, doling out cash contributions to lawmakers at levels approaching big-business groups like the American Bankers Association. And it's all for a single objective: To guarantee tariffs and price supports allow sugar beet farmers to make money, even if it drives the cost of sugar above the global market. "They're considered one of the strongest lobbies there is," said Larry Graham, president of the National Confectioners Association, a candy-makers group which has fought in vain against the sugar program.

## A2 Oil Dependence

#### Oil dependence doesn’t solve foreign policy or the economy

Levi 2013

[Michael, Senior Fellow for Energy and the Environment at the Council on Foreign Relations, “America's Energy Opportunity”, Foreign Affairs. May/Jun2013, Vol. 92 Issue 3, p92-104. 13p]

**The revolution in U.S. oil and gas production**, however, **is neither an economic nor a foreign policy cure-all**. The **economic gains** that even bullish analysts project **fall far short of what the U.S. economy needs to get back on track**. And **even if domestic production and the replacement of oil with natural gas allowed the United States to eliminate all petroleum imports (a massive stretch), the country would still not be energy independent in a meaningful sense**. **Because the price of oil is largely set on world markets, disruptions** **in** the Middle East and other major **oil-producing regions would continue to trigger price spikes for Americans at the pump. The only way out of this problem would be to try to block oil exports from North America in times of crisis**. **But such a strategy,** if it worked, **would inflict severe pain on allies by taking additional oil off world markets and could easily result in blowback if those who were hurt by Washington's moves retaliated economically.**